AMERICAN INSTITUTE FOR ECONOMIC RESEARCH

E.C.
HARWOOD

Cause and Control of the Business Cycle

new foreword
by Edward Peter Stringham

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Foreword

By Edward Peter Stringham

Do central banks help alleviate or actually contribute to *causing* the business cycle? Since F.A. Hayek won the Nobel Prize for his "pioneering work in the theory of money and economic fluctuations," more people have been recognizing the possibility that monetary policy may have real and deleterious effects. When expansionary monetary policy lowers interest rates, that lowers the cost of debt finance and that encourages overinvestment in long-term projects from factories to housing. But the low interest rates do not last forever, and people eventually see that the capital is to be financed with artificially created credit.

The 2000s housing boom and subsequent contraction may be a prime example. Increases in the money supply do not help the economy, but instead encourage overinvestment in long-term projects unsupported by market demand. This theory has increased in popularity in recent years to the point that even the president refers to the "artificially low" interest rates leading to a "false stock market." A recent Broadway play, Revolution in the Elbow, has a character inventing an ill-fated "prosperity machine," whereby the characters print money on demand only to later find the prosperity illusory.

Hayek is the most well-known economist to talk about how monetary policy can destabilize the economy. His work, however, was part of a larger research program. An important early contributor to the monetary overinvestment theory of the business cycle was former M.I.T. Professor E.C. Harwood, who began writing about the business cycle in a series of articles starting in 1927 and published his *Cause and Control of the Business Cycle* in 1932. To put those dates in context, Hayek, writing in

German, published his first essay on the topic in 1929 and his book in 1931. To Harwood, "Booms are made possible by the erroneous use, that is to say, abuse, of the money-credit machinery. Panics and depressions are the inevitable results of such abuse" (1932, p. 126). Using language similar to the now-popular term "malinvestment," Harwood referred to maladjustments associated with the expansion of credit. A search on Google Books only lists three mentions of the term "malinvestment" from 1936 and before, so Harwood is one of the first scholars, or maybe even the first, to systematically use such terminology.

Harwood's writings were prescient. In 1928, Harwood likens the American economy to a foot that had swollen, noting that "there is a fair probability that the 'shoe' itself will shrink materially" (1932, p.58). Two months before the October 1929 stock market crash, Harwood stated there had been "a tremendous expansion of bank credit since 1920" but "the prosperity of the past few years" may be nothing more than "another credit-splurging spree" (1932, p.62). And what fuels this credit? To Harwood we need to look at how the "the introduction of the Federal Reserve System, then, made it easy to carry inflation to degrees far beyond the maximum limits possible prior to 1914" (1932, p.121). Harwood here refers to inflation as increases of the money supply, a more common definition of inflation in years past, not just as increases in general price levels, the more common definition of inflation today.[1]

Harwood recognized that "the Federal Reserve Board is subject to political control" and has an "unwillingness to do anything which might

1 Harwood gives the following definition, "'Inflation' is the name applied to the situation arising when the banks or other agencies (such as the Treasuring printing press, which prints silver certificates) have created purchasing media in excess of that required to represent goods produced (including form, place, and time values) that are currently coming to market." So like other economists including Murray Rothbard, Harwood defines inflation as changes in the money supply. But unlike Rothbard, who writes the "process of issuing money beyond any increase in the stock of specie, may be called inflation," Harwood defines the change as relative to the amount of purchasing media required to represent goods coming to market. A 1961 version of *Cause and Control of the Business Cycle* elucidates the "Elements of an idea currency and commercial banking system based on a gold standard." That states the "the country's standard monetary unit" should be defined as "a fixed amount of gold" but states that in the commercial banking, "All demand liabilities (checking accounts) of the commercial banks to represent either gold or goods in or en route to markets and all such demand liabilities to be payable in the statutory gold units on demand." (p.156)

be interpreted as a blow at prosperity even when that prosperity is the result of an inflationary boom" (1932, p.122). After developing his theory, Harwood outlined how his theory was consistent with the historical facts.

Harwood's writings were mostly descriptive statements about how the economy works. But Harwood also had prescriptive statements about what the government should, or actually should *not*, do. To Harwood, government was not the solution envisioned by scholars like John Maynard Keynes. He writes, "The American business man and his brother in finance are wont to view with something akin to horror any intrusion of government into what they feel is their private business. The people in general are also distrustful of governmental experiments, and rightly so" (1932, p.125). Harwood concludes, "The more intelligent use of the money-credit system would not involve additional interference by governmental agencies, but less" (1932, p.125). At the end of the day, Harwood supported a banking system based on redeemable gold, which he says "make[s] possible all the elaborate mechanisms of the present economic order."

How do Harwood's ideas compare to other contributors to the monetary overinvestment theory of the business cycle? Harwood's ideas were pathbreaking, and after Ludwig von Mises's student and Austrian economist Gottfried Haberler published his famous *Prosperity and Depression: A Theoretical Analysis of Cyclical Movements* in 1937, Harwood highlighted the many parallels (along with "a few significant differences") (1961, p.16). Many similar ideas also show up in the work of Benjamin Anderson, with whom Harwood corresponded and talked about the overlap of their ideas.[2] In later editions of *Cause and Control of the Business Cycle*, Harwood also cites Knut Wicksell and F.A. Hayek. In 1954, Harwood reviews *Human Action*, praising Mises's discussion of inflation and business cycles, especially when Mises argues against other theories of the business cycle by relying on facts.

Although Harwood believed in developing theoretical insights and logic, he was not content with theorizing alone. He writes, "Modern

2 Anderson studied under John Bates Clark, whom Mises describes as "the founder of the great American school [who] utilized and elaborated the ideas of the Austrian school." Anderson is often credited by Harwood's friend Henry Hazlitt with being the first to bring the ideas of Ludwig von Mises to America.

inquirers do develop hypotheses and carefully check the internal logic as well as the logical implications of such hypotheses," but adds that we must look at the facts as well: "modern inquiry involves the mutual efforts of theoretician and laboratorian" (1970, pp.41-42). *Cause and Control of the Business Cycle* begins by outlining the theory, but then states, "Although the foregoing discussion is logically consistent, the explanation cannot be considered satisfactory unless it can be verified by observable facts." Harwood presents an Index of Inflation based on investment type assets and savings type liabilities of the nation's banks to measure excess purchasing media. (The first edition often refers to purchasing power and subsequent editions often have that term changed to purchasing media.) Harwood shows this ratio changing indicating increasing inflation in the late 1920s, and to him it helps explain the subsequent collapse.

Later economists have also described the Great Depression using an overinvestment theory including Murray Rothbard's *America's Great Depression*, published in 1963. Exactly how much Harwood's book influenced Rothbard is an open question, but Rothbard's library has a copy of Harwood's *Cause and Control of the Business Cycle* as well as works from Benjamin Anderson. Today, although Hayek and Mises are quoted and cited more, I think financial writer William L. Comer was right to state in 1982 that "E.C. Harwood, Prof. Friedrich A. Von Hayek, and Prof. Ludwig Von Mises are probably three of the most prominent authorities on inflation."

Harwood's ideas about inflation and the business cycle have relevance for our knowledge and for policy discussions today. In a recent speech, former Fed Chair Ben Bernanke differentiates between two perspectives in economics: "*Economic science* concerns itself primarily with theoretical and empirical generalizations about the behavior of individuals, institutions, markets, and national economies." "*Economic engineering* is about the design and analysis of frameworks for achieving specific economic objectives." Where Bernanke believes in both economic science and economic engineering, Harwood would certainly reject the latter view, warning against "the series of panaceas or cure-alls produced by numerous well-meaning individuals" (1932, p.83).

Rothbard (1974 [2000]), p. 86) describes history as a race between state power and markets, and I think we can describe the history of ideas,

including Harwood's ideas, in a similar way. In the most famous horse race in history, the 1973 Belmont Stakes, Sham took the lead with Secretariat at the back of the pack. In the wake of the Great Depression, those advocating more government control of the economy, including John Maynard Keynes, had their ideas clearly at the forefront. And as recently as a dozen years ago, many economists were claiming that the Federal Reserve had permanently figured out how to control the business cycle. But as time goes on, those who claim that government can engineer specific outcomes are having their ideas increasingly discredited. I submit that *Cause and Control of the Business Cycle* presents a more realistic alternative. I will let readers track down the ending of the 1973 Belmont Stakes, but I submit that the ideas of Keynes are represented by Sham and the ideas of Harwood by Secretariat. We are going around the first turn and entering the long run.

I am extremely pleased that the American Institute for Economic Research can make this classic work, still extremely relevant to the debate over monetary policy, available to a new generation of readers.

— Edward Peter Stringham
Great Barrington, Massachusetts

Preface

The events of the past three years have demonstrated that the business cycle is not a thing of the distant past. Although many hoped, and some asserted in 1929, that prosperity had come to stay, it is now evident that the perplexing problem of many years' standing still remains to be solved. The observable effects of the cycle have been assembled in graphs and tables of statistics so that every business man is able to appreciate the existence of the cycle from a much broader point of view than that of his own limited field. But the how and why of the business cycle has not yet been disclosed.

It may startle the reader, and perhaps prejudice him against the study which follows, if he is assured that this volume contains the explanation of the business cycle. Such is the purpose of the book, however.

Not only is the cause of the cycle explained; there is also included the factual proof that the explanation given is sound.

But this volume is more than a formal statement of a theory and an elaborate statistical verification thereof. It is also an attempt to deal with the subject in terms which the average intelligent business man and financier can readily understand. Any explanation of economic phenomena in words familiar only to the professional and professorial economists is doomed to many years of sterile existence. It is all too apparent that business men are suspicious of the professional economist, and justly so, it would seem. For that reason, the deductions are presented in such a manner that the common sense and experience of any business man will enable him to comprehend them.

In order that the discussion may be readily followed, the ideas are conveyed by the use of everyday words in so far as that is practicable. It is not generally realized, perhaps, but is nevertheless true, that there are

relatively few complex relationships which the human mind can formulate. The first problem in any science is to learn to speak the language. Once the definitions are mastered, the rest is elementary, regardless of the subject. Therefore, the initial difficulty can be most easily overcome in this case by avoiding language which might be too specialized for the reader to grasp readily. (As a matter of fact, the economists themselves have yet to agree on suitable definitions for many of the terms freely used by them.)

The problem has been attacked in the scientific manner. Due to widespread failure to comprehend the scientific attitude, it seems advisable to make plain what is meant. There are two extreme conceptions of the scientific method. One portrays the scientist as the indefatigable experimenter; while the other pictures him as a visionary theorist seeking fixity and finality in an ever-changing world. The true scientist is neither of these. He is far more than a mere alchemist, and would certainly stop far short of any evangelical faith in ultimate certainty. The scientist is a humble observer, but a discriminating one. On the foundation of simple observations, he erects a structure of theory from which conclusions may be drawn. These, if possible, are likewise tested by observation of the related facts.

Even if it is possible to verify his theories, the scientist does not claim infallibility for them. He realizes that his laws apply only within certain limits. But this does not make them less useful for the purposes of men in the adaptation of materials and institutions to human needs. It has recently become the fashion to deride the scientists, to assert that the old laws are not laws of nature, definite and unchanging. Especially, in relation to human conduct, it has been said that there are no laws, no deducible rhyme or reason in it all. It may be a comforting thought to some individuals that the hidden depths of their natures can never be plumbed; that they remain embodiments of mystery, in spite of the efforts of science to explain. But as a matter of fact, a great body of generalizations can be made concerning the reactions of human beings to environment. A simple case will prove the point.

Possibly the reader has seen another individual, when seated in a crowded theater, accidentally drop a coin. If we suppose that the scientist has personally observed several such instances, he might state his

observations in general terms as follows: (1) Practically no one will disturb his neighbor in a crowded movie theater in order to recover a lost penny. (2) Practically everyone who attends movies will trouble his neighbor if necessary in order to recover a lost half-dollar. From these simple observations two logical conclusions may be drawn as follows: (1) If you hear a coin drop in a theater and hear a man ask those next to him to move in order that he may recover the coin, it is probably more valuable than one cent; and (2) If you hear a coin drop in a theater and no effort is made to recover it, you may be fairly certain it is of less value than fifty cents. Note that it is not safe to conclude, in Case 1, that the coin is a fifty-cent piece, nor is it safe to conclude, in Case 2, that the coin involved is a penny.

The foregoing, simple as it may seem, is a valid example of the scientific attitude and its results in relation to an unimportant problem. The conclusions, as formulated and sometimes called "laws," are not intended to be final truth, unalterable, and applicable without exception. They are merely working hypotheses, approximately correct statements of the facts, sufficiently near so that, when intelligently applied, the deductions made will be correct for all practical purposes. Surely the practical man can ask no more.

The task herein undertaken, then, is an explanation of the business cycle, together with a test of the soundness of the reasoning followed. But in order to establish the usefulness of the results, additional information is presented in the form of extracts from a few previously published articles which successfully forecast the course of recent events on the basis of the theory herein. In order to clear away the existing smoke-screen of confusion in relation to the business cycle, several of the more popular panaceas proposed by various economists and others have been discussed. The principal paradoxical effects of the business cycle have been analyzed to show that the theory developed logically explains them. Finally, the possible usefulness of the Index of Inflation is pointed out in order that the results of this scientific research may neither be ignored nor exaggerated.

— E. C. H. June, 1932

Acknowledgments

I desire to acknowledge my indebtedness to many who have been courteous and helpful: to Mr. Luther Blake, president of the Standard Statistics Company, for permission to use the Standard Index of Industrial Production; to Mr. Emerson Wirt Axe and Miss Ruth Houghton for permission to reproduce their indexes of stock prices and business activity; to Colonel Leonard P. Ayres, vice-president of The Cleveland Trust Company, for permission to reproduce his chart of business activity; to the editors of *Barrons* and *The Annalist*, especially to that able realist, Mr. Benjamin Baker.

I am deeply obligated to members of the faculty of Rensselaer Polytechnic Institute, Professors Samuel Rezneck, M.A., Ph.D., and William Franklin Spafford, MA., in particular. Dr. Davis Rich Dewey, Ph.D., LL.D., in charge of the department of economics and statistics at The Massachusetts Institute of Technology, gave his valuable time to a critical reading of the manuscript and suggested certain changes which have materially bettered the order of presentation.

Many good friends should be included, but I especially want to thank Professor Clarence L. Adcock, with whom I share an office at Massachusetts Institute of Technology, for assistance in correcting manuscript and his willingness to talk business cycles at all hours. Mr. William C. Atwater, M. .M. E., has kindly assisted by constructive criticisms from the business man's point of view. That which is worth while in this book is due, in no small part, to the assistance of others. For its errors and weaknesses, I alone must take the responsibility.

— E. C. H.

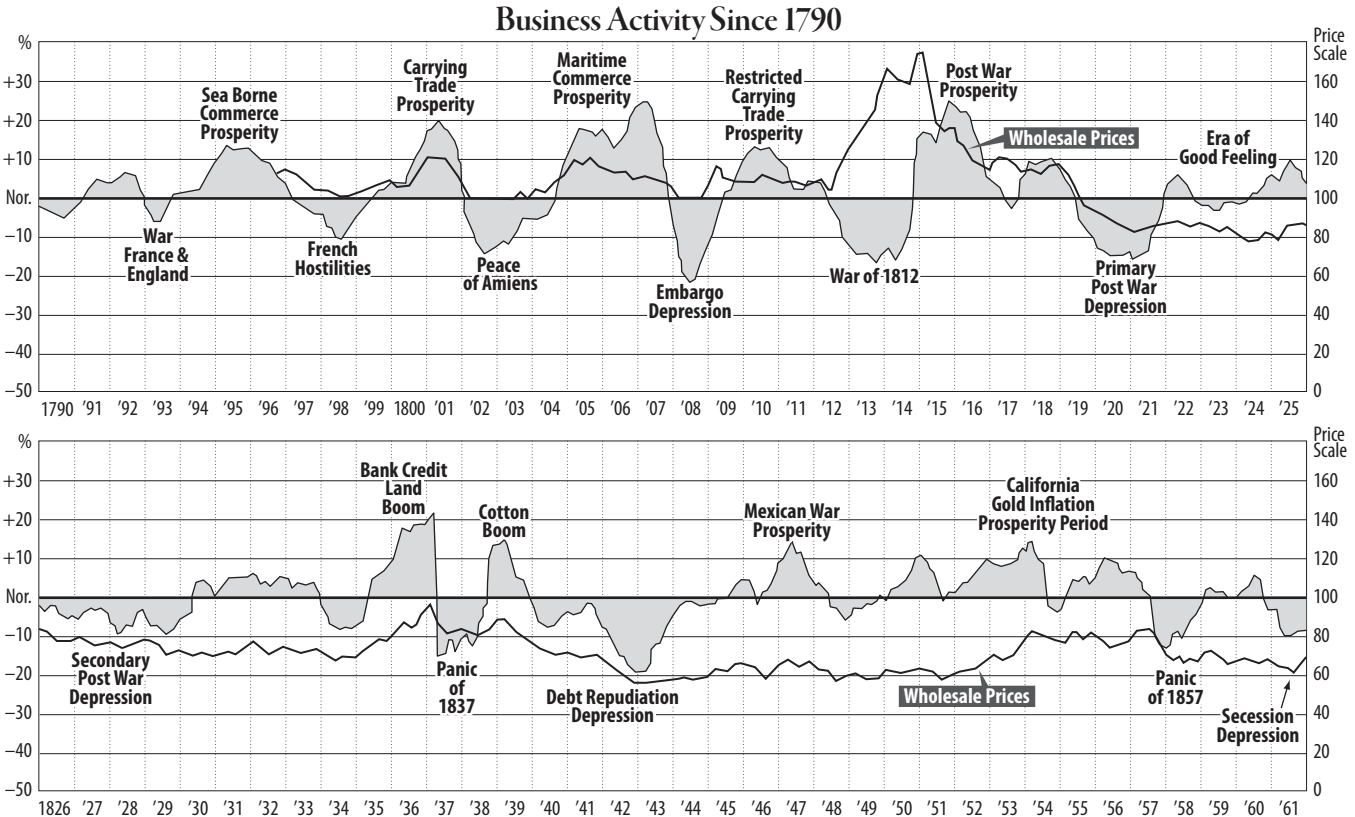
CHAPTER I

Introductory — The Problem

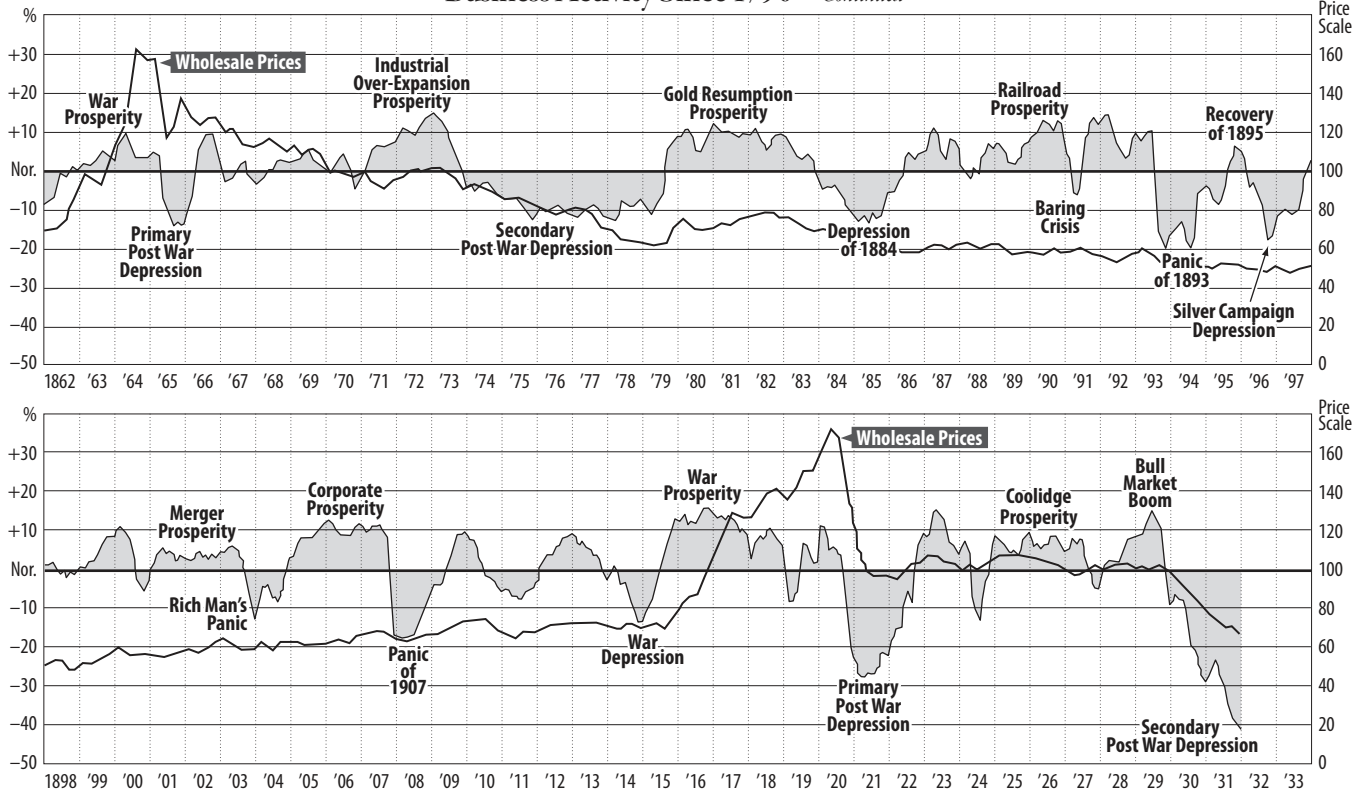
The business cycle has been a recurring phenomenon for many years past. In fact, its course can be traced with more or less precision almost to the earliest beginnings of the present economic system. In other words, it is an accompaniment of a social scheme which involves specialized production, exchange, and a money-credit mechanism. Only in recent years, however, especially the last quarter-century, have there been fairly thorough studies of the effects of the business cycle.

Wesley C. Mitchell was among the first to prepare quantitative analyses showing in tabular and graphical form the observable aspects of cyclical phenomena. Since his early contributions to the field, however, there have been many others, so that today there is a wide choice available. Inasmuch as the various statistical compilations and graphical portrayals of business activity, prices, and other data are substantially the same, there are shown below only a few of the many different indexes.

The first which it seems advisable to consider in this attempt to determine the nature of the problem is the chart, "Fluctuations in Business Activity Since 1790," prepared by Colonel Leonard P. Ayres. The most striking feature of this chart is the course of business activity which has varied over a range of approximately fifty per cent, including departures above and below an average or normal line. There is also included on this chart the course of commodity prices, based on the level of 1929 as 100. It


Business Activity Since 1790
%
+30
+20
+10
Nor.
–10
–20
–30
–40
–50
Price Scale
160
140
120
100
80
60
40
20
0
1790 '91 '92 '93 '94 '95 '96 '97 '98 '99 1800 '01 '02 '03 '04 '05 '06 '07 '08 '09 '10 '11 '12 '13 '14 '15 '16 '17 '18 '19 '20 '21 '22 '23 '24 '25
War France & England
Sea Borne Commerce Prosperity
French Hostilities
Carrying Trade Prosperity
Peace of Amiens
Maritime Commerce Prosperity
Embargo Depression
Restricted Carrying Trade Prosperity
War of 1812
Post War Prosperity
Wholesale Prices
Primary Post War Depression
Era of Good Feeling
1826 '27 '28 '29 '30 '31 '32 '33 '34 '35 '36 '37 '38 '39 '40 '41 '42 '43 '44 '45 '46 '47 '48 '49 '50 '51 '52 '53 '54 '55 '56 '57 '58 '59 '60 '61
Secondary Post War Depression
Bank Credit Land Boom
Panic of 1837
Cotton Boom
Debt Repudiation Depression
Mexican War Prosperity
Wholesale Prices
California Gold Inflation Prosperity Period
Panic of 1857
Secession Depression

Business Activity Since 1790 — *Continued*



By permission of Colonel Leonard P. Ayers. Reproduced from Guitteau's History of the United States, Houghton Mifflin Company, Publishers.

will be observed that, while wholesale prices have tended to rise and fall with business activity, the most marked movements have occurred during the few major wars in which this country has been engaged.

To present the record during recent years in greater detail, Chart XV, on page 35, portrays the Axe-Houghton-Annalist Index of Business Activity, an Index of Industrial Stock Prices from the same source, and the Bureau of Labor Index of Commodity Prices, all from 1914 to date. At least, during this period, the three indexes have obviously moved more or less together. Other records, not reproduced here, indicate that such has been the case as far back as adequate data can be found.

Finally, in order not to overlook the fact that business activity has naturally increased over the long term, there is reproduced the Standard Statistics Index of Industrial Production, corrected for seasonal variation, but not for secular trend. Presumably, the reader is familiar with indexes of the character shown, inasmuch as they are found in almost every business or trade periodical from time to time, and even in the financial sections of the daily papers in large cities.

Having observed the phenomena recorded in graphical form, the problem stands out in full relief. It is, of course, an explanation of the reason for the peculiar fluctuations in business activity, security prices, and prices in general which is desired. In other words, why booms and depressions? How is it possible that, although population is growing at a relatively stable rate, and although the wants of the populace are presumably not subject to wide variations in total quantity, there are nevertheless such extraordinary fluctuations in business and prices? This puts the question in general terms, but it may be worth while to mention some of the more detailed aspects of the problem which must be explained.

Today there are hungry and ill-clad workers in Detroit who have not had steady work for months; yet productive capacity is there ready to be utilized. Simultaneously, there are farm families in the West and South, poverty-stricken because the granaries and cotton warehouses are bursting with wheat and cotton which can hardly be sold for a song. The farmers could use new trucks, tractors, and cars. The workers in Detroit need food and clothing. Elementary common sense urges that these participants in the economic scheme produce, and "swap," thus ending the

Standard's Index of Industrial Production

difficulties of each group. But something prevents. What is it, and how, and why?

Back in 1919 it will be recalled that merchants could not get goods fast enough. The farmer wanted manufactured goods and the urban worker wanted food and clothing, yet for some reason neither class could seem to produce enough to satisfy the other. There was still a demand for more, and more, and more, at rising prices. Something prevented the balanced exchange that might have been expected. What was it, and how, and why?

Here is a city that three years ago was growing by leaps and bounds. New apartments were being built, and actually rented. New office buildings were finding tenants with ease. Today, many of these same apartments and office buildings are empty. The former tenants have gone. Families have returned to the farm, or to live with the old folks, or perhaps they have "doubled up" with friends. The businesses have had to curtail, have gone bankrupt, and the empty buildings stand staring with blank eyes, bare desolation relieved only by a sign which says "To let, will subdivide to suit tenant."

And in 1929, high-priced cars could hardly be delivered in New York fast enough for a class of new rich. Here was one of the most fantastic features of the "new era." Individuals whose knowledge of economics and finance was less than nothing, if knowing things that were not so be given a negative value, piled up fortunes. For a time, at least, they reaped a rich reward, and for what services to their fellows, does one ask? That is a hard question to answer. But something made it all possible because it actually happened. What was it, and how, and why?

So one might go on, pointing out the almost innumerable paradoxes which seem to travel in the wake of the business cycle. But this is enough. Everyone in the country has seen hope riding high tumbled in the ditch. The full dinner pail, equality of opportunity, a job for every man, high wages mean prosperity, and all the other slogans of a brighter day — where are they now? We hear of them only because the party out of office picks them up to sling back at the innocent optimists who mouthed them.

The Significant Characteristics

There are obviously three basic assumptions which may be made concerning the data already shown. These are:

1. That business activity, prices, etc., would, in the absence of accidental disturbances, remain approximately stable at or near the peaks of boom periods in the past; in other words, that an extremely prosperous condition is the situation to be expected were the cycle eliminated.

2. That business activity, prices, etc., would, in the absence of accidental stimulation, remain approximately stable at or near the lows of the depression periods; in other words, that a condition of ruinous competition and reduced activity is the situation to be expected were the cycle eliminated.

3. That business activity, prices, etc., would, in the absence of stimulants or depressive influences, remain approximately stable in the vicinity of the so-called normal indicated on various charts and graphs; in other words, that business activity would accomplish its long-term progress gradually instead of by leaps and bounds forward and back, that commodity prices would continue the very slow downward trend in evidence during the hundred years of the nineteenth century, and that equity values would slowly reflect the growth of individual businesses.

The first of the foregoing possible assumptions is untenable for two reasons. In the first place, the peaks of the curves shown are not long and flat, with a tendency to return to any particular index number. The charts alone are enough to discredit this assumption. But there is even stronger testimony available. It is well known that, however stable periods of boom prosperity may appear at the time, it has always and invariably been discovered subsequently that the underlying situation was rotten to the core. The richest rewards were being accumulated by those who contributed least, and the spirit of getting something for nothing engendered thereby ensnared the multitude into follies of the get-rich-quick order which defied the accumulated experience of countless ages. There is nothing stable about such a situation. It follows that the absence of the cycle would not make possible permanent prosperity of the boom variety.

The second assumption is equally invalid judging by the indications of the charts themselves. The valleys of the depressions certainly do not mark out any well-defined line from which the variations of the cyclical

phenomena could be classed as mere accidental departures from a stable base. Furthermore, the situation during periods of extreme depression is as artificial as that during boom times, even if from a somewhat different point of view. Long before the business cycle was a topic of the day, a philosopher said, "Whatsoever a man soweth, that shall he also reap." It may be assumed, therefore, that for man always to lose the rewards of his labor is as unnatural as for him to get something for nothing. But in a period of depression, men do not reap any reward for their efforts. Even those who took no part in the follies of boom days lose the fruits of their labor. This is presumably not a normal situation.

There remains, therefore, only the assumption that, in the absence of the cycle, business activity would pursue its long-term upward trend without either the hectic periods of extreme prosperity or the paralyzing decay of extreme depression.

If the assumption just stated be a satisfactory working approximation to the truth of the matter, it immediately follows that periods of boom prosperity are abnormal in precisely the same sense that extreme depression is abnormal. No doubt this is generally accepted to be the case. However, it is just as well to take as little as possible for granted because mere general acceptance of a theory is by no means necessarily related to scientific proof. Looking back over the record, it is obvious that booms and depressions have followed one another since the beginning, but it is not apparent which came first. It will pay, therefore, to consider briefly the characteristics of these periods in order to cast some light on the cause-and-effect relationships, if any, which may be involved.

From this point on, it would be easy to spin fine theories which would leave the reader entangled in a web of half-truths and misleading assumptions. One could, in fact, make out a pretty good case for either of several basic relationships. For example, it may be maintained that a boom is the result of deficient production during a depression. On the other hand, it is at least an arguable thesis that depressions result from over-production during a boom. These have all the earmarks of the familiar hen-egg-hen controversy and would probably result in equally unprofitable conclusions. Then it may be said that booms and depressions are mutually responsible for each other's existence. And the opposite theory is that they are independent phenomena, neither affected by the other.

Rather than embark on a series of extensive arguments in support of any of the foregoing contentions, or others, it is proposed to consider the data already presented with a view to seeing what minor relationship may be apparent. Following that, the investigation will be narrowed down to the salient characteristics common to all the business cycles shown. If there be any single explanation which accounts for all of them, or the larger part of each, its effects should be discernible and subject to description in general terms applicable to each specific case.

Perhaps, in considering the first simple relationship, it will be best to deal with instances which the reader will easily remember. The late fall of 1920 and the fall of 1929 were both periods of declining business activity. Although it was not generally believed at the time, we now know that the underlying situation in each instance was exceedingly unsound. For some time preceding the decline, individuals, businesses, and communities had been living beyond their means, and in order to do so had operated on thinner and thinner margins or even none at all in certain cases. To some extent, therefore, the decline represented a recovery to a sound basis, a liquidation of past excesses, the headache after the night before. This accounts, at least in part, for the swing of business below a normal plane. To what degree this explanation is useful still remains to be seen.

In the case of recovery, for example, in 1921 and 1922, it is easy to imagine that the normal needs and attempts to regain a decent standard of living on the part of millions of individuals, would gradually cause a return to normal conditions. But it is not apparent why recovery should proceed beyond that point until once again the boom phase of the cycle is reached.

The principal conclusion which these observations justify is that, although a depression may be in part attributed directly to the necessity for correcting previous maladjustments, the extreme prosperity aspect of the cycle does not seem to be so directly related to the preceding depression. But even this qualified and unsatisfactory conclusion cannot be considered final. It is hardly a solution of the problem. At best it may serve to indicate a point of attack.

We turn now to a consideration of those aspects of the cycle which are characteristic of its various phases in all recorded cases. For the purposes of this discussion only the more obvious ones, about which there

is no question, will be dealt with. Evidently, periods of prosperity include large volume of production, high prices for goods (relatively to adjacent periods of depression), and high prices for securities, especially equities. In times of depression, the reverse is the case. These observations are simple, in fact are little more than definitions of "prosperity" and "depression" respectively. Nevertheless, the logical conclusions which can be drawn are of the utmost importance.

It is no more than elementary common sense to assume that production is increased to meet actual or prospective increase in demand. Long experience in all kinds of markets with all kinds of goods has proved that enlarged production which is not a response to greater demand very quickly results in lowered prices. But during booms, prices are rising while production is increasing. It follows that there must be, during periods of extreme prosperity, an excess of demand with respect to supply. Now, this does not mean an excess of desire alone, a mere superabundance of wishfulness on the part of would-be consumers. Desire must be backed by purchasing power before it becomes demand in the market-place.

During depression, it is quite obvious that demand for goods greatly decreases. In spite of the fact that business activity is radically reduced, thereby cutting down supply, prices fall. This is conclusive evidence that demand has decreased even more rapidly than productive activity. When it is remembered that hoarding is a most unusual phenomenon in this country, and that banks almost invariably make use of funds at their disposal without delay, it becomes impossible to explain depression by a mere tendency to save. (On this point, more will be said later. It is believed that all doubts will be resolved at that time.)

From the foregoing, it is apparent that the obvious characteristics of the cycle lead inevitably to certain definite conclusions. These are: (1) that the boom aspect of the cycle is made possible by an excess of purchasing power with respect to current production; and (2) that the depression phase of the cycle is a reflection of a deficiency of purchasing power with respect to current production.

At this point it is advisable to sound a note of warning against deserting the scientific attitude for the short cut to the wrong answer which so many have already followed. It may seem obvious that, if a beneficent government would only monetize silver, or set the printing presses to work,

or embark on some other scheme similar in principle, all would be well. Unfortunately, depressions will never be cured so easily. This solution, as proposed by the Greenback Party, by Bryan, and by countless others, overlooks certain vital aspects of the problem. In particular, it neglects entirely the fact that the boom phase of the cycle was engendered by an excess of purchasing power with respect to current production. Furthermore, it sets up no adequate criterion by which the advisability of further emissions of paper money may be decided.

If, then, this short cut is to be abandoned, we return to a scientific consideration of the problem as it now appears. How is it possible for an excess of purchasing power with respect to current production to be in existence at one time and how can there be a deficiency at another time? When that question is answered, there will still remain another, namely: *Why* do these possibilities happen?

Such is the problem as it now appears. There are logical answers to these questions. Even better, there is ample proof, in the form of direct statistical verification, that the logical answers are correct. It is in this explanation that the causes of the business cycle may be found. Finally, the cause-and-effect relationships to be demonstrated point the way to such possibilities of control as there may be in man-made institutions.

CHAPTER II

Production and Distribution

Before proceeding with the investigation, it is necessary to devote some space to a description of the present economic system. In so doing it will also be possible to make plain the meaning of a few technical words which it is expedient to utilize. This bird's-eye view of the situation will disclose what may be called the normal or ideal functioning of the elaborate economic machinery which a complex civilization has evolved.

Production of goods, from the beginning of recorded history, has been simple in its broad outlines. It consists of the creation of form, place, and time values. In other words, substances as found in nature are changed in composition or shape, transported to the point of use, and held there until wanted. Each of the separate applications of human effort in one way or another ordinarily increases the value in exchange of any particular article. For all practical purposes, the additional effort required to accomplish any of the three types of production may be considered as incorporated into the substance concerned. In terms of other articles requiring the application of human effort, the value of any specific article increases with each new adaptation in form, place, and time. A simple example will serve to illustrate the point.

Wheat, as it stands in the fields ready for the harvest, may be said to have been produced, because it then exists in a finished condition so far as nature is concerned. But the process of production from the economic point of view has barely begun. The farmer, in transporting it to the local elevator, adds place value which is later augmented by other

means of transportation, usually the railroad. In the merchant's elevators there is a slow building-up of time value as the winter months go by. The human effort involved in this case is for the most part second-hand, so to speak. That is, it has previously been incorporated into the elevator and is drawn from that structure during its economic life. The elevator is what the economist calls "capital" or a "capital good" or "production good." This procedure of applying human effort to new production through the medium of a previously produced article of capital is usually present in more or less degree in all forms of production.

Continuing the simple illustration, it will be found that the miller changes the form of the wheat, thereby further adding to its value for exchange purposes. The flour is transported to the east, thus adding more place value. Finally, it is available on the shelf at your grocer's at the instant you choose to buy it. Thus a final increment of time value has been added. Obviously, the example could be made more detailed by introducing the part played by the wholesaler, possibly the baker, the deliveryman, and so on. But it is sufficient for our purposes if the outlines of the picture are complete. Any business man can fill in the details from his own experience in his particular field.

The process of production does not complete the economic existence of any particular article. An essential feature of the present economic scheme is the additional process of exchange by which distribution is accomplished. Broadly speaking, this is nothing more than the trading of one article for another in order that each individual may obtain a variety of things he desires in exchange for the large quantity of one class of goods which he may have produced, or to which he has acquired title in one way or another. This distribution process is of sufficient importance to bear further investigation.

Back in the days of a simple barter economy, the exchange process was elementary and direct. Even when the use of gold and silver by weight was involved, what occurred was no more complex than the actions of John in exchanging his knife for Bill's marbles. It is significant that there is no record of business cycles in those earlier days.

The modern distribution by exchange process is somewhat more complicated. It includes an elaborate mechanism which has slowly evolved as men have seen the need for it and developed its possibilities.

For want of a better name, it will be called the "money-credit system." Its visible institutions are of course the commercial banks and their appurtenances, such as clearing-houses. Since the business cycle has only been known to exist where there is a money-credit system, there is a strong presumption that booms and depressions are made possible by some malfunctioning on its part. But presumption is not proof and it will not do to jump at conclusions. However, there is ample justification for close scrutiny of the money-credit mechanism. The first step is to describe its normal, or, better, ideal, functioning in the economic scheme.

One of the simpler methods of discovering the function of any particular institution is first to picture the difficulties which would arise in the absence of that institution, then to imagine the perfect solution of those difficulties, upon which the actual functioning of the existing institution together with its possible imperfections may become apparent. This method is productive of reasonable results because the present economic organization *does* function, albeit with some lamentable imperfections. It follows that each existing institution must overcome at least the most serious difficulties which would arise in its absence.

Let it be supposed, then, that, by some stroke of national amnesia, the dollar and all the vast network of credit, including the entire banking system, is entirely removed from the American economic scene. Presumably, the wheels of industry would not instantly stop. However, only a short time would elapse before almost innumerable difficulties would be encountered. It is apparent that commerce and trade would, at first anyway, be reduced to direct barter. Workmen would necessarily receive their wages in the form of part of their product. The farmer's hired man would appear in the near-by city with a dozen sacks of wheat to exchange for his monthly spree. The automobile mechanic in Detroit would bring home forty-three thousand nuts, one-half inch, hexagonal, standard thread, and would then have an entertaining week-end trying to persuade the butcher, the baker, and the gas meter to accept them in trade. Everyone would soon have an assorted pile of articles useful only to someone else. The automobile assembly plant would have to figure out how many rear wheels were the equivalent of a completed automobile in order that, when the local butcher had brought in enough of them, he might be issued a new truck. Without going further into detail, it is quite

evident that commerce and trade would be greatly retarded if not brought to a halt altogether.

Now, it is reasonable to suppose, that, faced with the circumstances outlined, an intelligent society would quickly devise a method of accounting which would enable the desired exchanges to be made without actually passing goods from hand to hand. In other words, it is conceivable that an elaborate bookkeeping system might be established. Jones, a worker in a Detroit factory, would then pay his grocery bill with a certificate showing that he held title to, say, three rear wheels, his share of his week's production.

But such a system, while immensely superior to crude barter, would still present many difficulties. The grocer would have to accumulate certificates representing all the parts necessary to build a truck before he could actually obtain one, or some basis for exchanging certificates would have to be developed. On the whole, it would still be far from a satisfactory arrangement.

Having reached this stage in an attempt to facilitate commerce and trade, the social group would probably soon evolve the idea that if there were only a common denominator for all kinds of goods and services, exchanges could be much more readily accomplished. Unfortunately, there is no real and easily measurable common denominator, in the mathematical sense, of milk, automobiles, houses, novels, and spare parts, not to mention the innumerable other products of this machine age. In the absence of such a common denominator, a somewhat different method would have to be used. Any one product could be designated, and all other products might be carried on the books in terms of that product at such ratios as were determined from time to time in the market-place where all products were ordinarily exchanged. It is plain that any one of the many products which could be definitely fixed as to quantity and quality would serve the purpose more or less satisfactorily, depending on other factors which need not be mentioned at this point.

Let it be supposed that gold is the product chosen by this progressive society, in terms of which it is planned to record all other products. The hundred-car production of an automobile factory during one week might then be equivalent to one hundred poμnds of gold on the open market. If it be assumed that Jones's share of the production is about one

eight-hundredth of the total, then on the elaborate books maintained he would be credited with two ounces of gold, in spite of the fact that he had not produced any gold at all. In a somewhat similar manner, the remaining gold equivalent of the hundred cars would be apportioned, on the books, to those entitled to a share. (That is, interest to capitalists, dividends to stockholders, salaries to management, rent to ground-owners, taxes to the public treasury, etc.)

All the various agencies or factors of production would then have credit on the books of society in terms of gold. It is obvious that this procedure would make it unnecessary for the butcher to collect Ford parts certificates, or credits, until he had enough to make a car. He need only save enough gold credits and the car would be his. If titles to all production were similarly distributed, commerce and trade would be greatly expedited, would approach the existing system in fact. It only remains to call a certain unit weight of gold by some definite name, as for instance "dollar," and the difference between this imaginary system and that in daily use becomes very difficult to find. But there is a difference, and it is that difference which introduces many difficulties.

In the next chapter, it is planned to discuss in considerable detail the possible maladjustment which may arise. At this point, it will be sufficient to note that the elaborate distributive process in continual operation is made possible by the banking system. As goods are produced, or new increments of value are added, equivalent dollar credits are originated by the banks. These are in the form of new demand deposits which are circulated by the familiar checking process, until, as the goods in any particular case are sold, the producer is able to repay bank loans and thereby retire from circulation the specific amount of credit which corresponded to and made possible the distribution of the goods involved. In a simple illustration to be given later, this process, which may appear somewhat complex when read for the first time, will be plainly shown.

CHAPTER III

The Basic Maladjustment

Broadly speaking, current money incomes are representative of current production, or value added to goods produced; for example, by transportation. That this is the case in the long run is shown by the fact that money incomes buy all goods that are produced (after due allowance for wastage, spoilage, etc.). In general, the wages and salaries of the employees, plus cost of materials, dividends, replacements, and additions to the reserves and surplus held by businesses, are equivalent in value to current production. In other words, the payments to all individuals and agencies concerned are simply representative of the respective shares of goods produced. (We are not concerned with the equity of the distribution. The point is that one hundred per cent of the value of current production is distributed somewhat as outlined by means of the money-credit mechanism.)

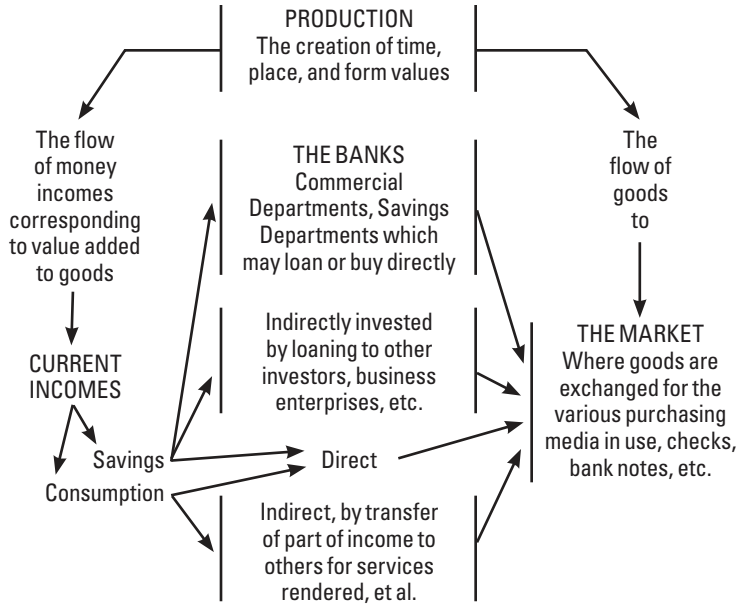
Parenthetically, and in order to avoid possible confusion, it may be well to mention that individuals not directly concerned in the production of tangible goods, or of increasing their value (as by maintaining retail inventories of them), acquire their titles to such goods by rendering services to those who hold the titles. This is but another way of saying that the purchasing media (either currency, or demand deposits subject to check) which are received by physicians, lawyers, civil servants, army and navy personnel, and others, are handed over to them by those who do have a direct right to share in wealth produced.

From the preceding chapter, it is apparent that the ideal situation exists when money incomes meet goods coming to market and, according

to the choices exercised by consumers, goods are purchased at such prices and in such quantities that all of money incomes are spent and all goods are sold. Inasmuch as the total flow of money incomes is presumably equal to the value of the parallel flow of goods, it is logical to suppose that the two can exchange for each other in the market. But this ideal situation seldom exists because of the presence of certain disturbing influences which will be dealt with in detail below.

In order to make clear what happens when the money-credit mechanism is functioning properly, there is shown below a diagrammatic illustration of the process.

Diagram I — Production and Distribution (Generalized)



Having gained an understanding of the productive process in general, and of the distribution by exchange mechanism which is known as the money-credit system, the next step is to see if there is any possible solution to the fundamental problem as originally stated. It will be recalled that it was finally found practical to formulate the problem in the form of a question near the end of Chapter I, as follows: How is it possible for an

excess of purchasing power with respect to current production to be in existence at one time, and how can there be a deficiency at another time?

In order to present the vital maladjustment in its simplest aspect, it seems advisable to reduce the complex economic scheme to a more readily comprehensible counterpart. For example, innumerable as the products of the agricultural and industrial realms are, it is clear that the basic principles involved may be illustrated by dealing with a simple society producing only three different products. Let these be food, clothing, and machinery (the last being the capital goods used in producing the first two). In this simplified social organization, it will be sufficient if there is one landlord who owns all natural resources, including the site value of land, and if there is one capitalist, an individual who has legal title to all of the production (capital) goods in use. Possibly it will be better to have three banks, A, B, and C, respectively. Three individuals serving as salaried managers of the three types of businesses and nine wage-earners will round out the personnel required. It will further simplify matters if retail sales are assumed to take place where the three articles are produced.

At the end of, for convenience, a five-day week, each of the three industries concerned will have a certain amount of its product on hand. Each of the managers thereupon approaches his respective banker with a statement showing current assets in the form of retail inventory ready for Saturday's business and requests that his account be credited with the gold equivalent. Of course, the manager signs a note for the amount involved and leaves it with the banker.

Each manager then has added to his checking account, or rather to the account of the business he is managing, the proceeds of his note. By simply writing out checks, each manager then turns over to the landowner, the capitalist, the wage-earners, and himself various sums which total all that he has just received. (Minor differences in the distribution, such as retaining part of the funds for use in the business, do not affect underlying principles.) All the individuals concerned deposit the checks received in the banks on Friday evening. The result will be to draw down the demand deposits of the three businesses, but there will be an equal amount of deposits subject to check by the various individuals. There will perhaps be some transferring of checks, and it is conceivable that, if most deposits are made in one of the three banks, the other two will have

adverse clearing-house balances temporarily. The condition will not last long, however, as will shortly be demonstrated.

It is necessary to decide on some distribution of the purchasing power here involved, so an arbitrary sum will be fixed upon in order to illustrate the principles concerned. Three hundred dollars will be a satisfactory amount, and it may therefore be assumed that this was the total of the three notes involved, each having been for $100.00. (In other words, each industry produced $100.00 worth of goods during the week in question.) The distribution of the sum may be assumed as follows:

		Total
To each banker (interest or discount)	$10.00	$30.00
To the landlord (from each industry)	20.00	60.00
To the capitalist (from each industry)	20.00	60.00
To the manager (of each industry)	20.00	60.00
To each of the nine wage-earners	10.00	90.00
Total		$300.00

In order to avoid unnecessary complications which would in no way affect underlying principles, the following table has been prepared showing an assumed disposition of the purchasing power at his disposal for each individual concerned.

	Spent for Food	Spent for Clothing	Remainder
Banker A	$5.00	$5.00	none
Banker B	5.00	5.00	none
Banker C	5.00	5.00	none
Landlord.	15.00	10.00	$35.00
Capitalist	5.00	10.00	45.00
Manager Number 1	5.00	5.00	10.00
Manager Number 2	5.00	10.00	5.00
Manager Number 3	10.00	5.00	5.00
Wage-earners (all nine).	45.00	45.00	none
Totals	$100.00	$100.00	$100.00

The managers decide to deposit their respective remainders in the savings departments of the banks, making a total of $20.00 thus deposited. The landlord decides to purchase $35.00 worth of newly issued common stock representing part ownership of the three businesses from the

capitalist. With the funds thus obtained plus his own $45.00, the capitalist decides to purchase additional machinery for his three businesses. The landlord, after investigating the matter carefully, gives the bankers a first mortgage on the real estate he owns in exchange for $10.00 of the savings in possession of the bankers. With this he also buys common stock from the capitalist. The latter, desiring to expand even further, takes the common stock he himself owns to one of the bankers as security for his personal note, thus borrowing the final $10.00 of deposited savings. On Saturday morning, the purchases indicated in the foregoing table are made and the capitalist buys the $100.00 worth of machinery on the market.

It is readily apparent that, by Saturday night, each of the managers of the three businesses will have sold all goods produced and will have $100.00 in deposit to the credit of his respective business. It only remains for the bankers to debit the three accounts when the notes fall due on Monday morning and the purchasing power involved will have passed out of existence until needed again. Having served its purpose in the distribution of goods produced, it will simply disappear until more goods are ready for distribution.

The underlying principles of the vast network of finance which appears so complex in real life are substantially the same as in the simple example just given. But there is a major maladjustment which has not been discussed in the simplified explanation above. This maladjustment will now be indicated.

Reverting to the table of expenditures assumed, let it be supposed that, before the Saturday shopping period, the following events occur: the landlord, believing that ownership of common stock will prove profitable, prepares a first mortgage on his real estate in the amount of $100.00 and asks Banker A to lend him that amount (instead of the $10.00 as before). Banker A has no such sum available in his savings department, inasmuch as the savings of the three managers are in Bank B. However, Banker A is not deterred by that circumstance. Having decided that the first mortgage is good security and that the property is worth far more than $100.00 under any conditions, he credits the landlord's checking account with $100.00. In so doing, he originates additional purchasing power to that

extent. The landlord then buys stock from the capitalist ($100.00 borrowed plus $35.00 remainder).

It so happens that the capitalist is equally enthusiastic about the prospects for his businesses and decides to borrow $100.00 himself on the basis of some of his stock as collateral. The sum is obtained from Banker B, who thereby originates $80.00 excess purchasing power. (Banker B already had $20.00 on deposit in his savings department.)

As a consequence of the transactions just described, the capitalist has a total of $280.00 with which to bid for machinery on Saturday morning. Either the $100.00 worth of machinery on the market will sell for $280.00, or there will be an additional effective demand for such articles in the amount of any possible difference.

In either case, production of machinery will suddenly become a very profitable business. The manager will initiate overtime work, extra bonuses for greater production, and the like. Profits will boom, and the purchasing power injected into the channels of trade will raise prices (relatively, at least) and encourage speculation.

Consider the asset and liability showings of Bank A under the conditions just described. There will be an item of $100.00 as a loan on real estate with no time deposits or other semi-permanent liabilities to justify the acquirement of such an asset. Bank B will show an asset item of $100.00 as a loan on securities with but $20.00 in the parallel item of savings or time deposits. The net result will be a lack of balance between investment-type assets and savings.

Furthermore, it is apparent that, under the conditions stated, Banks A and B will have unfavorable clearing-house balances, that of the former being the greater, while Bank C will find that the clearing-house balance will be in its favor. The precise manner in which this situation arises can be plainly seen if it be supposed that, in the distribution of purchasing power last described, the capitalist bids all of the funds at his disposal for the current output of capital goods. The $100.00 worth of machinery would then be sold for $280.00 as already mentioned. If the manager of the machinery business had dealt with Bank C in the first place, it is obvious that not more than $100.00 could have been checked out of that bank, whereas $280.00 would be deposited to the credit of the machinery industry's account on Saturday night, thus giving a favorable clearing-house

balance to Bank C. Conversely, Banks A and B would find themselves in debt at the clearinghouse (or confronted with diminished reserves if a system similar to the Federal Reserve System be assumed).

Of course, until Bank C indulges in credit expansion of an inflationary character to approximately the same degree as have Banks A and B, these two will be forced to borrow in order to settle balances (or to maintain reserves if the Federal Reserve System be assumed). If Bank C does not long delay in putting to work the funds thus unexpectedly placed in its hands, investments or loans are increased and the excess purchasing power is sent merrily on its way to continue the evil effects until the general price-level has been raised to a level which absorbs the excess media of exchange.

It will have occurred to the reader, no doubt, that, since the landlord and the capitalist have obtained the use of the additional purchasing power in the form of a bank credit for a limited time only, there will come a time when the unbalanced condition will be corrected by repayment of their respective borrowings. Presumably, when that occurs the excess purchasing power will pass out of existence, just as does that based on goods when the goods have been distributed to the consumer. If such were actually the course of events, the inflationary effects would at least be sharply limited in duration. In practice, however, these borrowings are not repaid when, in theory, they are due. Furthermore, the price rises, stimulated by a small degree of inflation, even if apparent only in a limited market, invite further speculation for the rise and further expansion of plant in order to meet what is, for the time being, an increasing demand. Consequently, even larger inflationary loans are sought, and, although some may be repaid, taken by and large they grow in volume with the passage of time and lend further encouragement to the individuals most directly affected.

There is, it must be plain, a limit beyond which an inflationary progression cannot continue. This limit is reached when the monetary unit becomes worthless. The German paper mark furnished the most recent and obvious example of this outcome.

It is possible, however, to insure that an inflationary progression will be halted before the limit above mentioned has been reached. Such is the effect of a legal limitation governing bank reserves. In the course of an inflationary progression, deposits grow at a very rapid rate. So also does circulating currency of the hand-to-hand variety. When both have

expanded to the limit permitted by legal reserve requirements, the inflationary spree must of necessity come to an end. This condition existed in late 1919 with results which are now familiar history.

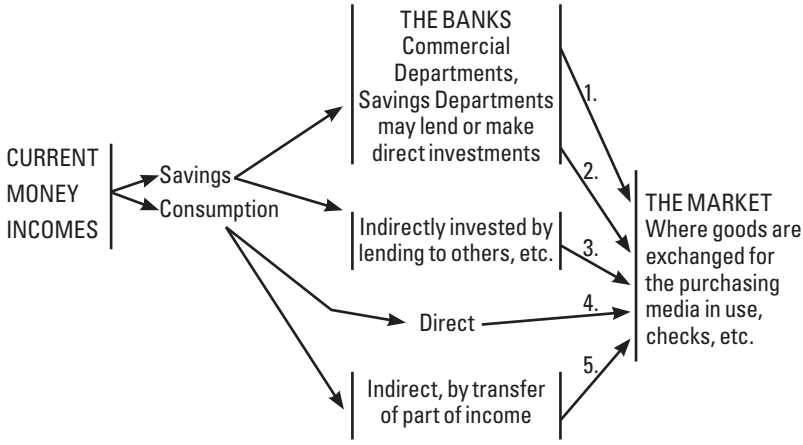
Probably it will be best to carry the simple situation already used through the period of deflation which must inevitably follow inflation. Referring now to the loans contracted by the landlord and the capitalist, let it be supposed that, the legal limits of credit expansion having been reached, the banks are forced to call loans, or to demand settlement when due, or to sell the loan collateral. Possibly the two individuals concerned in this instance will find that, by devoting a portion of current income to that purpose, they can repay the loans. Should this be the case, there will be withdrawn from circulation purchasing power essential to the artificial price-level then existing (including the price of the principal speculative medium). More probably, however, the banks will find it necessary to sell all or part of the assets securing the loans. The effect of this is to take out of the market a portion of the flow of purchasing power which is buying goods and securities. The selling movement thus initiated pricks the bubble, prices start sliding (most drastically in the principal vehicle of speculation), and sentiment quickly changes so that every effort is made to withdraw the excess purchasing power and repay loans. Bank credit is retired at a rapid rate. Overstimulated businesses fall by the wayside, and depression reigns supreme.

From the foregoing, it is obvious that the deflationary aspects of the cycle, so far as business is concerned, may be the simple result of a flow of goods to market which is met by a flow of purchasing power somewhat reduced below the possibility of a balance between the two by the need of liquidating past excess credit extensions. Thus it is that merchants find their wares going begging and that repeated price reductions are necessary in order to move goods currently produced.

The foregoing discussion may be incorporated in a diagram which presents this possible solution of the problem in its two phases, that is, during inflation and again during deflation. In order to make the diagram as simple as possible, there is shown only that portion of the production-distribution process which includes the movement of purchasing power from the time of its receipt as Money Incomes until it is spent in The Market.

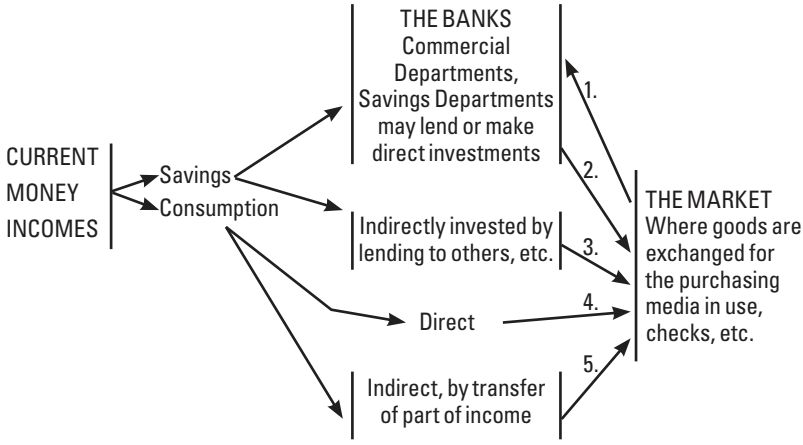
Diagram II. — Inflation and Deflation

Case 1. During Inflation



Note: During the period of inflation, the banks invest the savings placed at their disposal, and in addition originate an excess of purchasing media (shown in flow line number 1) by lending to individuals and others on securities and real estate; that is, investments exceed savings.

Case 2. During Deflation



Note: During the period of deflation the banks are selling their excess of investment type assets (and calling loans) thereby reversing the flow in line number 1. In both Case 1 and Case 2, the total of flow lines numbers 2, 3, 4 and 5 is equal to CURRENT MONEY INCOMES, which in turn is equal to the money value of current production. The direction of flow in line number 1 accounts for the excess purchasing power demanding goods during inflation and the corresponding deficiency during deflation.

Thus far, it has only been shown that certain manipulations of the money-credit system are possible, and that, if they occurred, they would probably prove to be the solution of the problem. The next step is to ascertain whether or not there have actually been maladjustments of the money-credit system of the character indicated. A logically consistent hypothesis has been formulated. In order to test its validity, there are two means available. The first is to check the necessary conclusions against observable facts. The second is, by strictly logical processes, to attempt to explain related effects which are known to exist. Fortunately, it is possible to verify the solution by both methods. Chapter IV deals with the statistical proof of the explanation which has already been presented in the form of a working hypothesis.

CHAPTER IV

Proof

While the foregoing discussion is logically consistent, the explanation given cannot be considered satisfactory until it has been verified by observable facts. The first step in accomplishing this is to decide what facts to observe. From the simple illustration given, it is apparent that, if the hypothesis is correct, the banks originate purchasing media in the form of demand deposits too rapidly during a boom. Because this has been done, it later becomes necessary to retire deposits from circulation in order to liquidate past excess originations of credit. As has already been shown, this corrective measure results in a deficiency of purchasing power with respect to current production at prosperity price-levels. It will also be remembered that the banks based the excess of circulating deposits on investment-type assets. In other words, the banks lent, on the security of property and goods which were *not* coming to market, more than the accumulated savings at the disposal of the banks justified. The excess of such credit extensions, over accumulated savings, constituted a direct addition to the flow of current purchasing power which was *en route* to market in order to buy goods. Obviously, then, if all banks of the country have assets of investment type in excess of the savings at their disposal, there must be an excess of purchasing power in circulation. If such a condition existed to a marked degree during the boom phase of the cycle, there would be direct confirmation of the explanation given.

As everyone knows, statements of the condition of all banks are available periodically. It is possible, therefore, to obtain the total of

investment-type assets for all banks and to compare it directly with the total of savings which justify such credit extensions. Unfortunately, bank statements are somewhat complex. For the average business man and financier, the details of statistical analysis would be boring as well as unnecessary. The complete explanation of the statistical work, together with most of the tables of figures and charts based on them, have therefore been relegated to Appendix A. Students of economics and statistics will find this appendix a mine of information, but for the purposes of this portion of the discussion, the bare results will suffice.

In order to present the data in forms easily comprehensible, there has been tabulated below (Table I) the total of investment-type assets and savings-type liabilities for all banks of the country from 1914 to 1932, inclusive. The difference between the two, usually an excess of the former, is shown in a separate column. Chart XIV displays the respective totals in graphical form. Chart XV shows the difference, or excess purchasing power placed in circulation, together with the graphical record of business activity, wholesale commodities, and stock prices for the period in question.

Table I — Investments, Savings, and Borrowings, All Banks of the United States (Billions)

Date	Investments	Savings	Difference	Borrowings[1]
1914				
June 30	$13.3	$12.9	$0.4	$0.3
December 31	13.7	13.6	0.1	0.4
1915				
March 4	13.6	13.9	–0.3	0.3
May 1	13.7	13.9	–0.2	0.3
June 25	13.7	14.1	–0.4	0.3
September 2	13.9	14.0	–0.1	0.3
November 10	14.7	14.2	0.5	0.3
December 31	15.1	14.2	0.9	0.3
1916				
March 7	15.5	14.6	0.9	0.2
May 1	15.6	14.8	0.8	0.2
June 30	15.8	15.1	0.7	0.2
September 12	16.1	15.4	0.7	0.3
November 17	16.7	15.8	0.9	0.2
December 27	16.7	15.9	0.8	0.2

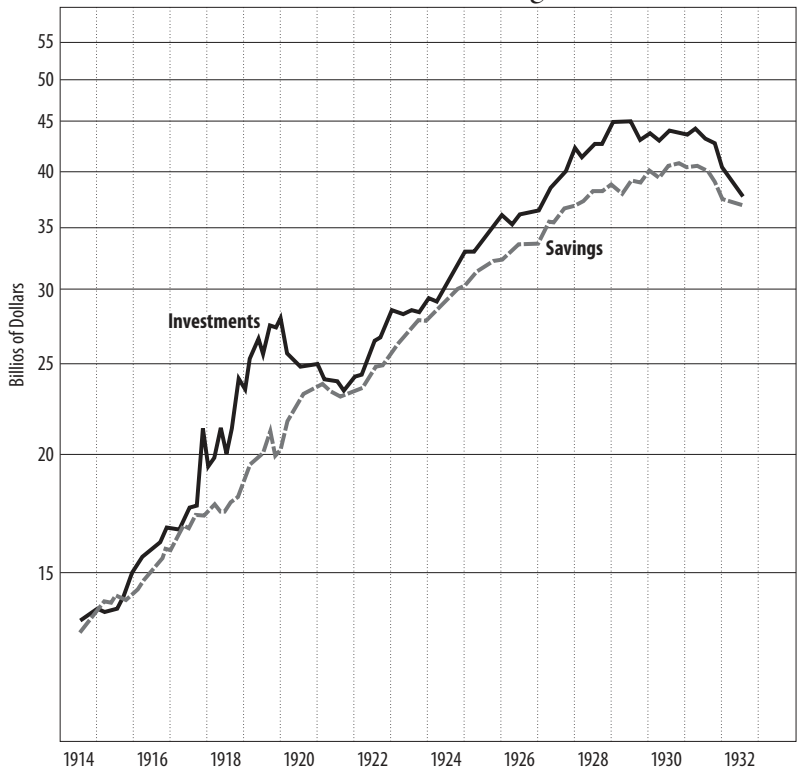
Date	Investments	Savings	Difference	Borrowings[1]
1917				
March 5	16.6	16.4	0.2	0.2
May 1	16.9	16.8	0.1	0.2
June 20	17.5	16.8	0.7	0.6
September 11	17.5	17.2	0.3	0.5
November 20	21.3	17.2	4.1	1.1
December 31	19.3	17.3	2.0	1.2
1918				
March 4	19.8	17.6	2.2	1.1
May 10	21.3	17.4	3.9	1.4
June 29	20.0	17.4	2.6	1.5
August 31	21.2	17.8	3.4	2.1
November 1	23.9	18.0	5.9	2.7
December 31	23.4	18.6	4.8	2.4
1919				
March 4	25.3	19.4	5.9	2.4
May 12	26.7	19.8	6.9	2.7
June 30	25.5	20.0	5.5	2.7
September 12	27.5	21.1	6.4	2.6
November 17	27.3	19.8	7.5	3.0
December 31	27.8	20.2	7.6	3.2
1920				
February 28	25.7	21.4	4.3	3.3
May 4	25.0	22.4	2.6	3.7
June 30	24.7	22.9	1.8	3.6
September 8	24.9	23.4	1.5	3.9
November 15	24.7	23.6	1.1	4.2
December 29	24.8	23.6	1.2	4.2
1921				
February 21	24.1	23.7	0.4	3.4
April 28	24.0	23.3	0.7	3.2
June 30	23.9	23.1	0.8	2.9
September 6	23.3	23.1	0.2	2.5
December 31	24.1	23.1	1.0	2.1
1922				
March 10	24.3	23.5	0.8	1.3
May 5	25.2	23.9	1.3	1.2
June 30	26.2	24.6	1.6	1.2
September 15	26.7	24.9	1.8	1.0
December 29	28.4	25.6	2.8	1.2
1923				
April 3	28.2	26.5	1.7	1.3
June 30	28.5	27.1	1.4	1.4
September 14	28.3	27.7	0.6	1.5
December 31	29.2	27.9	1.3	1.4

Date	Investments	Savings	Difference	Borrowings[1]
1924				
March 31	29.1	28.5	0.6	1.2
June 30	30.2	29.1	1.1	0.9
October 10	31.6	29.9	1.7	0.7
December 31	32.7	30.2	2.5	0.9
1925				
April 6	33.0	31.1	1.9	0.9
June 30	33.7	31.6	2.1	0.9
September 23	34.6	32.1	2.5	1.2
December 31	35.8	32.2	3.6	1.4
1926				
April 12	35.2	38.1	2.1	1.1
June 30	35.9	38.5	2.4	1.1
December 31	36.3	38.5	2.8	1.3
1927				
March 23	37.9	35.1	2.8	1.1
June 30	39.0	35.6	3.4	1.1
October 10	40.2	36.6	3.6	1.2
December 31	42.2	36.9	5.3	1.6
1928				
February 28	41.4	37.1	4.3	1.5
June 30	42.6	38.1	4.5	1.8
October 3	42.6	38.1	4.5	2.2
December 31	44.9	38.5	6.4	2.4
1929				
March 27	45.0	37.8	7.2	2.3
June 30	45.0	38.9	6.1	2.4
October 4	43.1	38.9	4.2	2.4
December 31	43.8	39.6	4.2	2.3
1930				
March 27	43.1	39.4	3.7	1.6
June 30	44.0	40.3	3.7	1.6
September 24	44.0	40.6	3.4	1.6
December 31	43.8	40.4	3.4	1.6
1931				
March 25	44.2	40.4	3.8	1.5
June 30	43.3	40.0	3.3	1.1
September 29[2]	42.7	39.3	3.4	1.4
December 31[2]	40.4	37.3	3.1	2.1
1932				
June 30[2]	37.7	37.3	0.4	1.5

[1] See page 30 for explanation of this item.
[2] Subject to revision when final data for June 30, 1932 become available.
Note: The items given above are taken from Appendix A. A complete explanation of the statistical work involved will be found therein.

Chart XIV shows the data given in the first two columns of Table I. A logarithmic vertical scale has been used in order that equal percentage variations may be equally prominent on the chart. It will be observed that the accumulation of savings in the custody of the banks has followed a remarkably steady upward trend during most of the period covere d. Chart XV (on page 35) shows the differences between the two curves of Chart XIV at successive times. This difference is called the Partial Absolute form of the E. C. Harwood Index of Inflation. The technical reasons for the use of this form of the Index are explained in Appendix B. It is important to realize the exact significance of variations in this curve. An upward trend at any time indicates that the rate of new investment was greater than the rate of accumulation of savings at this time. In consequence thereof, the total investments of the banking system were

Chart XIV — Investment vs. Savings, All Banks

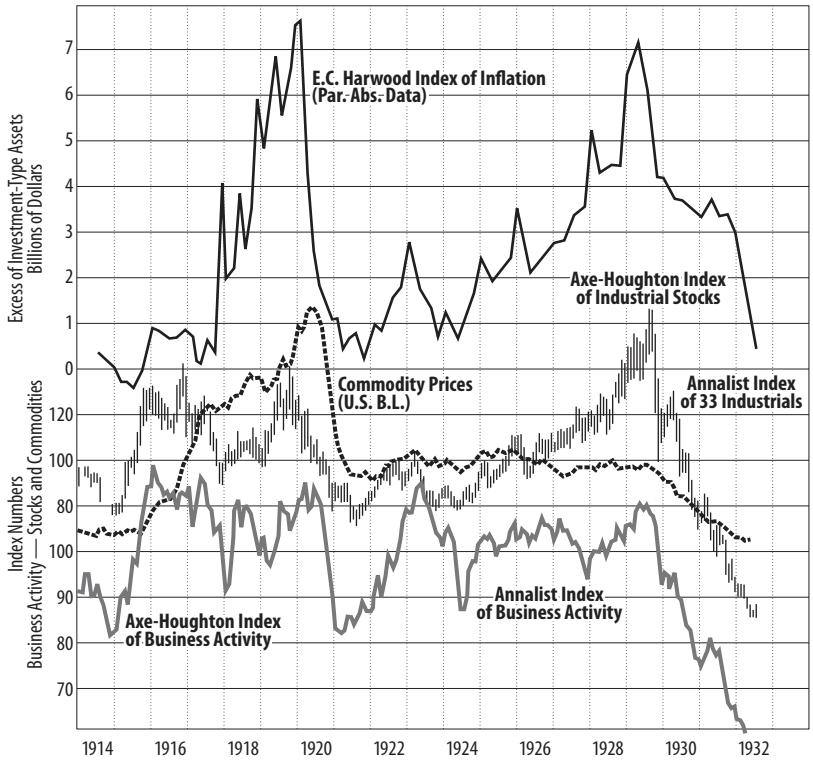


increasing, at that particular date, with respect to savings. Conversely, a downward trend indicates that part of the new savings, at the time in question, were being used to liquidate past excess originations of credit. As a result, the rate of new investment at such a time was less than the rate at which savings were being made. In each case shown, this liquidation process has continued until the balance between total savings and investments has been restored; that is, until the difference between them has been reduced to nothing. Referring now to Chart XV, it will be observed that the excess of investment-type assets in late 1919 was nearly $7.0 billions, and that the total was approximately the same in 1929. This simply means that excess purchasing power in circulation at those times was originated by the banking system in precisely the manner suggested in the simple illustration of the preceding chapter. In other words, this is the direct and incontrovertible proof that the explanation given is correct. From the chart, it is clear that boom prosperity, high commodity prices, and high security prices coincide with the marked periods of inflation shown by the Index.

It will be remembered that, in the simple illustration already given, it was pointed out that one of the first effects of an inflationary extension of credit by a bank is an outward flow of funds from that institution. In other words, the banks contributing most to the excess purchasing power in circulation are apt to have adverse clearing-house balances because funds are flowing out faster than they are coming in. In the case of the Federal Reserve System, where adverse balances are debited against the member bank's reserve account, this means that the member bank concerned must borrow, usually by rediscounting at the Federal Reserve Bank in its region.

Although the presence of an unbalanced condition (investment-type assets greater than savings) in any one bank would mean adverse clearing-house balances, as soon as all other banks had joined the inflationary progression to an equal extent, the exchanges at the clearinghouse would tend to cancel out or offset each other. Therefore, if there was no inflation one would expect bank borrowings to be negligible. On the other hand, during inflation it is reasonable to suppose that borrowings would increase. Borrowings would not, necessarily, be proportionate to the

Chart XV — An Index of Inflation



degree of inflation, since it is conceivable that all banks might originate excess purchasing power at a uniform rate and that the flow of checks by which exchanges were effected would cancel out. However, from the practical viewpoint, such perfect coordination between all the banks is not to be expected. It follows that increased borrowings by the banks are indicative of a condition of inflation. The evidence is circumstantial rather than direct, but it is presented in Chart XVI (on page 37) for what it may be worth. (The figures are included in Table I.)

Referring now to Chart XVI, the most striking feature is the direct confirmation of the theoretical explanation just given. It will be observed that borrowings did not reach as high a proportion in 1929 as was the case in 1919. Since the inflationary progression from 1924 to 1929 extended over a longer period than that of 1917 to 1919, and inasmuch as the *rate* at

which inflation increased was never as sharp in the later instance as in the earlier one, it is easy to realize how the banks were able to act more uniformly in the later period. This situation would prevent any large adverse clearing-house balances and consequent necessity for borrowing. Once again the observable facts fully confirm the basic theory involved. (At this point, it seems advisable to mention the fact that hoardings may result in borrowings to offset adverse clearing-house balances, but this is not a phenomenon of boom periods.)

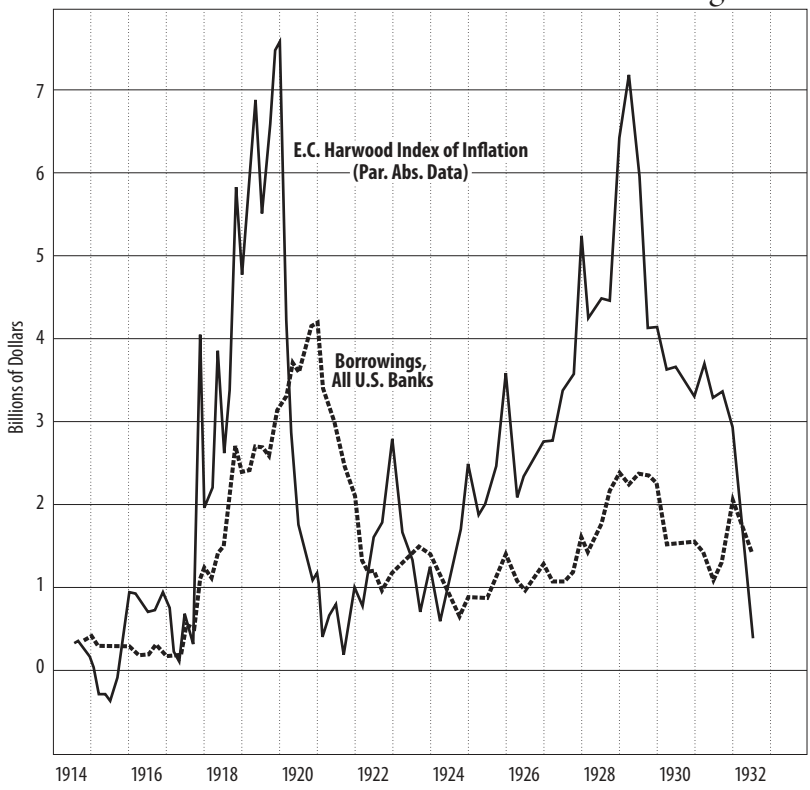
The reader may feel reasonably satisfied, at this stage, with the logical and statistical proofs already submitted. However, the subject is of such vital importance as to warrant examination from all angles and the consideration of all available evidence. There is presented, for that reason, a brief discussion of the work of Mr. Carl Snyder, of the New York Federal Reserve Bank. In addition, there is also indicated still another means by which the basic theory has been confirmed statistically.

In the preceding section of the chapter, a portion of the assets of the banks has been compared with a portion of bank liabilities. Inasmuch as total assets naturally equal total liabilities, it is to be expected that a comparison of the remaining assets and liabilities likewise reflects the changes noted. The significance of this fact will be more apparent after consideration of the items separately.

In selecting the investment-type assets of the banks, a certain criterion is used, namely, that the security for the credit extension involved does not appear on the market during the period of the loan. The remainder of bank assets are the commercial loans, those based on goods produced or value added to goods produced, which are to appear on the market during the time the credit is outstanding. These have been called 'automatically self-liquidating assets' because the sale of the goods concerned provides the wherewithal for repaying the loan.

In selecting the liabilities used, the criterion is whether or not the item involved represents funds left with the banks for long-term use, or to state it somewhat differently, that the item concerned does not indicate purchasing power which is constantly being shifted from bank to bank. In other words, demand deposits, which are circulated by the checking process, are not liabilities justifying investment-type assets.

Chart XVI — Index of Inflation and Bank Borrowings



Since the automatically self-liquidating assets are representative of goods which shortly appear on the market, and since demand deposits (including notes in circulation) are the purchasing power which will take goods off the markets, it is plain that there should be a balance between these items. In fact, if there is a lack of balance, in so far as the banks are concerned, it is certain that the open markets will adjust the prices of goods accordingly.

The usual process of acquiring investment-type assets in excess of the liabilities justifying them is for the banks to lend more on securities and real estate than they should (that is, more than they should so long as they fail to liquidate other investments in order to obtain the funds for such purposes). The proceeds of such loans are credited to the demand deposits of the borrowers with consequent enlargement of that item without a

corresponding increase of the automatically self-liquidating assets. It is plain, therefore, that an excess of demand deposits with respect to the automatically self-liquidating assets is an indication that inflation exists.

Mr. Carl Snyder, of the New York Federal Reserve Bank, has made elaborate statistical studies which constitute a test of the relationship just mentioned. He found that the annual increment to the physical flow of production has averaged between three and four per cent. In addition, he has prepared indexes which reflect the increase in purchasing power in use. A ratio between these two closely parallels the actual course of prices in recent years. Unfortunately, the work has involved sampling and other statistical short-cuts which have made it possible for some individuals to belittle its significance. However, the results confirm the theory and data submitted herewith. This in itself is a valid testimonial to the painstaking care involved in the compilation of Mr. Snyder's figures and is a tribute to their essential accuracy.

There is still another means by which the basic theory involved may be verified from the available facts. The fact that investments exceed savings during a boom signifies that the production of capital goods exceeds the normal rate. In fact, the ease with which goods of all kinds are sold at such times is a standing invitation to manufacturers to increase capacity by enlarging plants in order to meet the demand for more products. Much of the excess credit originated also finds its way directly into the mortgage field and is used for the construction of new apartments, office buildings, and homes.

If it were possible to obtain an accurate compilation of total savings for the country during the year, and compare this total with the dollar volume of new construction of all kinds, it should be possible to obtain further confirmation of the theory. This has been attempted in an article which appeared in *The Annalist* for January 20, 1928. While the tables prepared for that article are not very satisfactory because of the estimates required, the results definitely substantiate the other statistical exhibits.

In this connection, it is important to realize that only the banks can originate excess credit. An insurance company, for example, in making loans on policies, merely gives the borrowers the use of funds already in its possession. The banks, on the other hand, can actually originate purchasing power in the form of credits to checking accounts. Therefore, all

the differential between total investments for the entire country and total savings is certain to be reflected in bank statements. The Index of Inflation developed is consequently an all-inclusive criterion, not based on sampling alone, but encompassing all pertinent data. It must be concluded, therefore, that the basic theory is fully supported by the facts, and that it is further confirmed in a highly satisfactory manner by several independent statistical observations.

CHAPTER V

Inflation and Deflation

It is proposed, in this chapter, to formulate definitions of 'inflation' and 'deflation' which will make the use of the words clear and precise. There is also a condition which will be called 'constriction' that it is likewise necessary to describe. While it may appear unnecessary, at first thought, to devote an entire chapter to definitions of this kind, the existing confusion on the subject is so great, and is so largely responsible for the 'sloppy' thinking which abounds, that it is believed advisable to spend considerable time and space in being sure that conceptions of inflation and deflation are accurate and useful.

The necessity for better definitions than at present exist, or are generally used, can readily be seen from the careless usage of the words in current writing. It will be remembered, perhaps, that when the Glass-Steagall emergency bill was recently passed, there was an uproar of criticism and praise by its opponents and proponents. It was claimed that it would be inflationary in its effects, and it was also claimed that it would merely be anti-deflationary. The headlines blared forth the news that the country was to be flooded with currency, but currency in circulation subsequently declined. As a matter of fact, much of the disagreement arose simply because those writing pro and con had not agreed on definitions. One eminent economist has told me that inflation meant, to him, merely a rising price-level. Professor Irving Fisher apparently believed that there was no inflation in 1928 and 1929 because the commodity price-level did not rise in those years. One of the most brilliant

authorities on the subject, John Maynard Keynes, has failed to establish clear and precise definitions of inflation and deflation, with unfortunate results which mar a great work.

In view of the possible course of events illustrated in the simple example used, and the known facts as set forth by the statistics compiled, it is now feasible to define 'inflation.' As has already been indicated, during periods of extreme prosperity, the banks of the country have acquired and held more assets of the investment type than the funds at their disposal for such purposes have justified. It has been possible for the banking system to do this because it can originate purchasing power and either buy investment-type assets directly therewith, or make loans based on such assets to individuals and others. This means, of course, that part of the purchasing power placed in circulation at such times is not balanced by goods coming to market during the period that the purchasing power is outstanding. Inflation is defined, therefore, as the condition arising when the banks of the country have originated purchasing power in excess of that required to represent goods produced(including form, place, and time values) which are currently coming to market.

The effect of inflation is to place in the hands of individuals and businesses excess purchasing power which is naturally used to purchase goods of one kind or another. In the absence of goods to balance the excess, buyers bid up prices in general (always relative to the long-term trend and sometimes absolutely as well). Usually, the resultant rise in prices is especially marked in some particular class of articles, although its effects spread out to all. Thus, in 1919, the principal speculative medium was the general run of wholesale commodities, while in 1928-29 the stock market was the favorite.

A large portion of the excess purchasing power (either in the form of checking accounts or bank notes) remains on duty in the principal field of speculation, rapidly changing from hand to hand as speculators for the rise successively buy and sell, bidding up prices to ever higher levels. However, much of the excess finds its way into the channels of trade. Successful speculators buy new houses, automobiles, and other luxuries. Many businesses, deceived by the artificially stimulated demand, enlarge plant facilities with funds obtained, in part, from the flood of excess purchasing power. Organized labor finds it possible to demand a

higher wage from the business men who are participating in the windfall profits. Public agencies are encouraged, by increased tax receipts and the prospects of easy borrowing, to enlarge expenditures. Much new construction, together with highly forced consumption of current production, is reflected in the statistics of trade as the familiar periods of boom prosperity.

It must be remembered that the origination of the excess purchasing power in the first place comes about through the process of discounting notes and crediting checking accounts with the proceeds. The rising prices, which at first may be in a limited field, invite speculation for the rise, which means further borrowing. Finally, the boom is fully developed and sustained largely on the basis of pyramided extensions of credit. It is, therefore, a very vulnerable situation. A serious disaster of one kind or another has often been sufficient in the past to prick the bubble and initiate a reversal of the process. If something of this kind does not occur, the boom may carry along until the legal limitations of banking reserves have been reached. This contingency, of course, brings the speculative spree to an end.

All during the period of extreme prosperity, the banks have been making new investments at a faster rate than the growth in savings has warranted. The total of investment-type assets has, therefore, steadily increased relatively to the savings justifying them. The reversal of the process is the condition called 'deflation' which may be defined as follows: Deflation is the condition which exists when the excess purchasing power initiated during an inflationary progression is being retired from circulation through the process of liquidation of the assets concerned.

During the deflationary phase of the cycle, there is a constant drain of funds from the stream of money incomes. The banking system withdraws this credit by selling securities in the open market and by calling loans. In the period of prosperity, prices of goods and services gradually become adjusted to the inflationary condition. Consequently, when the deflationary process begins, there are goods on the way to market priced at prosperity levels. Due to the retirement of purchasing power from circulation by the banks in order to liquidate past excesses, goods coming to market meet an insufficiency of purchasing power. Prices have to be

reduced. Merchants and manufacturers thereby suffer losses and attempt to curtail production and cut costs. But as long as the liquidating process is incomplete, the most drastic reductions in wages and other elements of cost are productive of temporary advantage only. Although goods may be started to market at much lower prices, the flow of money incomes is still being 'milked' to 'pay the piper' and the cheaper goods in turn find insufficient purchasing power awaiting them.

Deflation does not continue forever, though. Eventually, the balance between savings and investment is restored. When this point has been reached, the current rate of investment can then proceed in parallel with the current rate of savings. No further drains are made on money incomes to repay old loans of an inflationary character. Unless there is some disturbing factor, recovery to normal proceeds from that time forth.

It will be observed that the process of inflation is a departure from a normal and relatively stable situation, and that the process of deflation is merely a return to normal. The normal here referred to is, of course, the condition of balance between investment and savings, which must exist over the long run. Business activity fluctuates above *and below* its normal because it reflects the relation between the current *rate* of investment and the current *rate* of savings. This point has already been covered in some detail in connection with the first derivative of the Index of Inflation. (Appendix B.)

Thus far, it has been assumed that the total investments of the banking system must be at least equal to the total savings available to the banks. The only maladjustment discussed has been that arising from an excess of the total of investment-type assets over the total savings and the subsequent return to normal. It is obvious that, in theory at least, a maladjustment or loss of balance in the other direction is possible. Therefore, it will be wise to consider that contingency.

There are only two possible means by which the savings of the public can be diverted from the investment market. These are: (1) that the banks should hoard part of the savings placed at their disposal; or (2) that the public should hoard currency on its own account. These will be discussed in turn.

In recent months, there has been a great deal of talk about the banks being guilty of hoarding. Unfortunately, the word is used loosely

at times, so it will be necessary to investigate thoroughly before reaching any conclusions. In the first place, mere refusal to make new loans or new investments is not proof that the banks are hoarding. That situation is forced on the banking system during a deflationary progression, and bankers have no choice but to make the best of it. Reserves must be maintained, and clearing-house balances must be met, even if loans must be called and investments sold. Apparently, the only way that banks can hoard is to hold large quantities of cash in vault. The most superficial examination of bank statements during the past several years will show that there has been no hoarding of this kind. It is true that banks have been trying to better their conditions, to become more liquid, but this does not mean that cash in vault has been increased. Many people have gained the impression that such was the case, but a careful examination of the reported facts shows that the more liquid conditions have been obtained through the usual process in times of deflation; that is, through the necessitous liquidation of securities and investment-type loans. We are forced to conclude, therefore, that the banks do not hoard. Indeed, it would hardly be logical to expect them to, inasmuch as their profits depend on the prompt utilization of all funds placed at their disposal.

Although the banks are not guilty of hoarding, the public has indulged its fears, and distrust of the banks, by hoarding on a large scale during 1931 and thus far in 1932. The result has been to drain from the current flow of money incomes a sum which at its maximum has approached $1.8 billions. This amount is savings, in the sense that it is not spent, but it is not made available to the banking system for investment nor is it directly invested. Naturally, the public hoardings, since they are a side-tracking of current money incomes, affect the sale of goods coming to market in precisely the same manner that simple deflation does. The difference in the two situations arises from the fact that, while deflation, as herein defined, is recovery from an unbalanced condition, hoarding may cause a loss of balance in the opposite direction. It is an abuse of the money-credit system comparable, in reverse, to the inflationary process. Furthermore, the effects of hoarding are especially severe because the outflow of currency causes a drastic liquidation of banking assets several times greater than the amount hoarded.

In order to differentiate between deflation, which is a recovery from inflation, and the results of widespread hoarding, the word 'constriction' is used. It is defined as follows: Constriction is that condition arising when, the balance between investments and savings within the banking system having been restored, hoardings are accumulated in such substantial amounts as to cause a marked excess of savings, including hoardings, over the total of investment-type assets. In a subsequent chapter it is expected to point out what action is possible to prevent or offset the evil effects of this type of abuse of the money-credit system.

In closing this chapter on definitions, it may be advisable to recognize the fact that the reader perhaps has quite different notions as to suitable definitions for 'inflation' 'deflation' and 'constriction' respectively. If anyone's preconceptions along these lines are disturbed by the definitions given, let him simply remember that the vital features are the relationships between money-credit factors; that at times the banking system is abused by excess credit originations which later on have to be liquidated, and that the system may also be abused in an opposite manner if there is hoarding. That the first-mentioned maladjustment, its correction, and the contrary maladjustment actually occur, has been proved by the data already submitted. These various conditions may be labeled according to the reader's fancy, provided he keeps clearly in mind what each condition is, as well as whether it is a divergence from, or a return to, a sound utilization of the money-credit system.

CHAPTER VI

The Acid Test

In preceding chapters a theory of the business cycle has been formulated. It has also been subjected to statistical verification. As yet, however, no mention has been made of its forecasting value. Inasmuch as the basic ideas were first discussed by the present writer in early 1927, there has been ample opportunity to subject the theory here presented to the acid test of forecasting. Enough time has elapsed to make the test complete in several instances. Since it is difficult to imagine any more severe test of any theory, the results obtained deserve careful consideration. They confirm the underlying soundness of the basic ideas to an extent that is distinctly gratifying.

It may be recalled that, beginning in September, 1927, gold was exported on a fairly large scale for several months. This occasioned much comment by economists and financiers. There was wide disagreement as to the effects to be anticipated. Estimates of the amounts of gold which could be given up by this country without undue restriction of credit ranged from one or two hundred million dollars to as high as one billion dollars' worth of the yellow metal. Although there was not then available the elaborate statistical analysis since prepared, such data as were available pointed to the fact that credit expansion had already proceeded about as far as was possible without resort to the use of more Federal Reserve credit. The concluding paragraph of an article written in early 1928 (*The Annalist*, March 14, 1928) is as follows:

> To return to the credit 'shoe,' we are in this position: the foot has swelled; there are numerous bunions'; the Federal Reserve Board is tightening the 'lacing'; and there is a fair probability that the 'shoe' itself will shrink materially. Therefore, we should not be surprised if a pinching sensation develops in the not far distant future.

The timeliness of the foregoing prediction of an end of the easy-money period is shown by reference to any of the several good indexes of bond prices. ('Standard Statistics,' *The Annalist*, Dow Jones, etc.) It will be observed that March, 1928, was the peak month for bond prices.

By January, 1929, the existence of a marked degree of inflation had become so obvious that an article was prepared which discussed the general situation, and in addition included certain calculations which showed the maximum possibilities of further credit expansion at that time. One of the significant paragraphs was worded as follows:

> Banks of the country are already in a position which, before the days of the Federal Reserve System, would have choked off the era of prosperity. In other words, they are overloaned, and are able to continue supporting outstanding credit only by borrowing from the Federal Reserve Banks.

This article did not predict an immediate termination of the boom, but it did show that an unsound situation then existed and that it would mean ultimate collapse. ('Calculations on the Credit Expansion Limit to Present Prosperity' *The Annalist*, January 25, 1929.)

In February, 1929, the present writer also pointed out the grave dangers attendant upon security speculation in the scale then under way. A few brief extracts from the published article will show its tenor:

> It was pointed out that a check operates against commodity price inflation because other countries seek through exports to take advantage of high prices in any one country. In the case of securities, this check cannot act. In the absence of any outside check, the situation is similar to the famous tulip speculation which occurred

> in the Netherlands, or even to the ill-fated Florida land boom. ("Speculation in Securities vs. Commodity Speculation," *The Annalist*, February 15, 1929.)
>
> ⋆ ⋆ ⋆ ⋆
>
> Because of this fact, it is probable that forced liquidation of securities would develop very much as has the farm loan situation since 1920.
>
> In 1920, straight commercial loans were a far greater proportion, and the credit structure was correspondingly safer… . The creation of this enormous volume of purchasing power goes far to explain stock-market action.

In short, the article quoted in part above maintained that 'the current speculation in, and price inflation of, capital goods as represented by securities is far more dangerous than commodity speculation.' The conclusions reached were based on portions of the theory of the business cycle already discussed at length. It is hardly necessary to emphasize the correctness of those conclusions.

Early 1929 was a period when nerves were taut and feeling ran high. A few sane observers apparently realized that the mad speculation was bound to end in a catastrophic plunge. For the most part, however, the prophets were telling of even better times to come. The few dissenters were simply drowned out by the happy gamblers' chorus set to the tune of clicking tickers. Finally, as though to make real and substantial, conditions which had seemed something of a dream, the economists announced the discovery of a 'new era.' It is hardly fair to give the credit for this discovery to all economists because many of them never did admit that times had changed. But some left a written record of their findings, and there one finds that the 'new era' rested on a firm foundation because there was no inflation; and the absence of inflation was predicated on the fact that commodity prices had remained at approximately the same absolute level for six or seven years. Therefore, it is interesting to know that the theory herein developed had provided an explanation of the apparent stability of commodity prices which was consistent with the existence of a marked

degree of inflation. The following is quoted from an article written in March,1929:

> It must be remembered that these prices are relative as well as absolute. That is to say, in considering them, their relation to world commodity prices and the long-term trend should not be overlooked.

In other words, the apparently stable situation, in so far as commodity prices were concerned, concealed within itself a rise in prices *relatively to the long-term trend*. Of course, it followed that the absolute level of commodity prices was not a satisfactory criterion of inflation. Incidentally, this article showed that the then level of prices was only maintained because there was inflation, and that lower prices were to be anticipated. The preparation of this article happened to coincide with the highest level of prices reached in 1929, a level nearly fifty per cent higher than that now prevailing. This article, by the way, was never published. The editor to whom it was sent found it 'too theoretical' for his use.

One of the most interesting of the published articles appeared in August, 1929. It included the second attempt to evaluate statistically the degree of inflation and was the first to present data showing the investment vs. savings relationships. Although the statistics compiled were incomplete, it was possible to draw certain definite conclusions as follows:

> 1. There has been a tremendous expansion of bank credit since 1920.
>
> 2. Part of the expansion has been inflationary in nature, so that, while a reasonably sound position existed as late as 1925, the degree of inflation in 1929 would seem to be comparable with that of 1920.

It must be conceded that the timing of this article was exceptionally fortunate, in that the beginning of the end was but a little more than a month later. However, after granting luck its due, there still remains a balance on the right side of the ledger to be credited to the theory of the business cycle herein presented. We quote the concluding paragraph of the article:

> It seems to this writer that the concrete evidence herein presented offers a far more satisfying explanation of the prosperity of the past few years than the 'new era' brand of reasoning; and further, that the time may not be far distant when the country will realize, in the light of a 'cold gray morning after,' that it has just been on another credit-splurging spree. ('Deterioration of the American Bank Portfolio,' *The Annalist*, August 2, 1929.)

After the initial collapse in the security markets, the panic of '29, there was an attempt to belittle the extent of the impending readjustments. In certain quarters there was still plenty of confidence, or at least the outward appearance of it. By various means, prosperity was to be brought back into the fold. Wages were to be maintained. (Henry Ford even announced an immediate raise for those in his employ.) New construction was to be pushed by public and private agencies. Everyone was to continue to spend as he had before. Pollyanna was to be Queen, and the bad depression bogey-man was to be banished from the scene. In that atmosphere of hope and determination, when rose-tinted glasses were almost forced upon one, and when "...he and his son, John D. Rockefeller, Jr., were accumulating substantial amounts of common stocks,'[1] it was a little difficult to view conditions realistically. However, once again the basic theory of the cycle was utilized, this time in an article published late in November, 1929. A few important truths were mentioned:

> and the truth of the matter is that the banks, taken as a whole, are greatly overburdened with slow-moving assets. It was treating credit as capital which made possible the speculative orgy of recent years. When, therefore, Mr. Hoover, or anyone else, speaks of the Federal Reserve System as making available 'ample capital' he is suggesting a continuation or renewal of the unfortunate

1 *New York Times*, October 31, 1929.

> policy which has been instrumental in bringing about the existing situation.
> … In other words, credit, instead of having been confined to its legitimate use (the distributive function) has been authorized on the basis of assets which were not habitually liquidated within a brief transporting and marketing period. Instead of being retired with the passage of goods into consumers' hands, this credit has remained in circulation, an excess over the genuine needs for distributive purposes.

In short, the article from which the above was taken stated in no uncertain terms that the situation was not fundamentally sound, that the banking system was in a seriously non-liquid position, and that there was no royal road via high wages, new construction, pep, and ballyhoo which would permit a quick return to prosperity. As a matter of fact, the article as originally written definitely forecast insolvencies among the banks 'in wholesale lots.' This was a little too truthful, even for that able realist, the editor of *The Annalist*, who felt it wiser to delete that sentence. ('The Aftermath of Getting Something for Nothing' *The Annalist*, November 29, 1930.)

Mention has already been made of the new construction proposals which were to bring back prosperity. Apparently this particular panacea was especially favored by Mr. Hoover. In any event, Governor Brewster of Maine, in speaking before a conference of governors on November 21, 1928, said, 'It is the considered recommendation of the one who has received the overwhelming mandate of the American people to guide and guard their progress in the next four years that a construction reserve may prudently be accumulated in time of plenty against the lean year that is to come… ' When the lean year came, the Administration in Washington called a conference at which new construction pledges were made. Railroads, utilities, States and municipalities, and, of course, the Federal Government, all agreed to expand construction in order to bring back the days of the full dinner pail.

For a time the vast undertakings initiated in accordance with the pledges made in Washington seemed to exert a steadying influence. At least, the depression's later phases were somewhat postponed. In fact,

during the early spring of 1930 it was quite generally believed that the depression was over. But the Index of Inflation told a different story, and that story was recorded in another article which appeared in May, 1930, just when it seemed most certain that the 'corner' had been turned. A brief quotation from that article will suggest its general character:

> The President, as might have been expected, recently spoke hopefully before the Chamber of Commerce of the United States, asserting in no uncertain terms that 'our joint undertaking has succeeded to a remarkable degree,' and that 'we have attained a stage of recovery within this short period greater than that attained during a whole year or more following previous equally great storms.' Unfortunately, these high-sounding phrases bear neither statistical nor logical analysis.... Furthermore, the end is not yet.... On the whole, it seems neither unfair nor premature to charge the forced construction scheme with definite failure to improve the situation, and with actually prolonging or tending to prolong the current depression. ('Criticism of Stimulated Construction as a Cure for Business Depression' *The Annalist*, May 30, 1930.)

While the facts do not yet prove that the worst of the depression has passed, there are other articles for which the "acid test" will soon be completed. Based on preliminary estimates, an article on December 21, 1931, stated that, except for hoardings, the balance between savings and investments was substantially restored. It also indicated the possibility of danger ahead as follows:

> When savings are accumulated in the form of currency hoardings, the money-credit mechanism fails to function properly. There is a definite contraction of the purchasing power in circulation which chokes off the distribution of goods, which could conceivably end in a temporary

> disruption of the money-credit mechanism. ('Is Deflation Nearly Completed' *Barrons*, December 21, 1931.)

On February 15, 1932, another article emphasized the severe strain imposed on the banking system by hoardings, and recommended the remedial measures subsequently taken by the Federal Government and the Federal Reserve Board. ('Effects of Currency Hoarding,' *Barrons*, February 15, 1932.)

In April, when the Federal Reserve Board began its policy of buying securities on a large scale, there was wide disagreement as to the probable results. Another article at that time stoutly defended the Federal Reserve policy and took a definitely optimistic attitude toward the security and commodity markets. By projecting the Federal Reserve buying rate into the future, it predicted that the turn for the better would be made possible "— by the absence of further liquidation of bank assets" probably about the end of May. ('Bold Action Justified,' *Barrons*, April 29, 1932.)

Thus far, we have mentioned only those predictions and analyses which have actually been made, and which have appeared in printed form. (The one rejected as 'too theoretical' is the sole exception to this statement.) It is interesting to consider the predictions which might have been made had the theory and statistical data been available for the past fifteen years.

Beyond question, the nature of the inflationary boom which ended in 1920 was plainly indicated by the Index of Inflation. It is true that the precise turning-point could not have been forecast from the data shown. However, in conjunction with the reserve situation of the twelve Federal Reserve Banks, it would have been quite possible to predict the end of that speculative spree.

The decline registered by the Index of Inflation from late 1919 to 1921 showed that the long-run balance between total investments and total savings was being restored. It was certain that, in the absence of hoarding or some unpredictable catastrophe, recovery would begin as soon as the deflationary process was completed.

CHAPTER VII

The Explanation of Various Familiar Problems

Unemployment

In earlier chapters there has been presented a logically consistent explanation of the business cycle together with statistical proof of the soundness of the underlying theory. It has also been shown that the theory has been further tested by successful forecasting of current events and conditions. The weight of evidence in favor of the given explanation is therefore overwhelming. But still another test is possible. If the theory set forth is adequate and a close approximation to the truth, it should provide a logical explanation of certain related phenomena. In this chapter, therefore, there is a brief discussion of four features of the economic scene which have been the subject of no little controversy from time to time.

The first of the four is unemployment. This is a complex subject on which thick volumes have been written. Therefore, this discussion can deal with the matter only in its broad outlines.

In general, there are three classifications into which the unemployed may be grouped, as follows:

1. The unemployable; that is, those personally and individually unqualified because of health, habits, age, or other disqualifying factors. There is no sharp line between this group and the remainder of society. Under certain conditions, as in time of war, some place in the productive

scheme may be found for the least inefficient of this group, but ordinarily and in the long run they are unable to find a niche in the economic edifice.

2. Those unemployed for reasons inherent in the nature of their work. This class includes the seasonal unemployment in the building trades, for example, as well as the unemployed among dock laborers, who only expect intermittent employment at best. Other cases might be mentioned.

3. Those unemployed by reason of advances in the arts or shifts in industry; in other words, technological unemployment, as it is now called, constitutes a third group.

The foregoing classifications, it will be observed, are almost certain to have at least a few representatives among the unemployed at all times and regardless of the phase of the business cycle. It is well known that the cycle is in itself accountable for some of the unemployed during the depression phase. However, it is desired to consider first the effect of the business cycle on the three causes of unemployment already mentioned.

In the case of Class 1, the business cycle has a marked influence. During boom periods businesses are forced to expand operations in order to meet the increased demand. This expansion is almost invariably accomplished at the expense of efficiency, at least in part. This, in turn, means that during such periods a portion of the normally unemployables are drawn into industry. The fact that they are not earning their keep is hidden by the windfall profits accruing to businesses. Of course, when hard times come, and every business is carefully weighing the worth of each employee, the so-called unemployables are the first to be cast aside. It may safely be asserted, therefore, that the business cycle has the harmful effect of drawing into industry during boom periods some of the individuals actually not able to 'pull their weight' so to speak. The result is, naturally, to introduce certain elements of friction and consequent waste in the economic machine.

In the case of Class 2, the influence of the business cycle does not appear to be so marked. Certainly it has no effect on the weather. This is not to say that periods of prosperity fail to increase employment in such industries, and the reverse. But such effects are direct results of the cycle and are not indirectly produced by the influence of cyclical phenomena on the basic unemployment factors in this class.

In the case of Class 3, the business cycle undoubtedly has a very great effect. During periods of extreme prosperity, most businesses receive abnormal profits due to causes already pointed out. These windfall profits invariably have the effect of postponing the necessity of reducing production costs. Therefore, although invention may proceed at a fairly rapid rate, there is not the same urge to take advantage of more efficient production methods that exist in times when profits are more difficult to obtain. Furthermore, although improvements in the arts may be introduced in some businesses in order to meet increasing demands, the mere existence of excess demand makes possible a continuance of production in sub-marginal units which are actually obsolescent and can only be operated profitably because of boom conditions in general. In other words, the normal death-rate of businesses is substantially lessened during inflationary periods of prosperity. Therefore, when the period of deflation arrives, there is crowded into a short space of time all the readjustment which, in the absence of the cycle, would be proceeding at an orderly rate all the time. Technological unemployment is consequently especially great during the deflationary periods.

In addition to unemployment of the three classes above mentioned, there is the purely cyclical unemployment. During the deflation phase of the business cycle, innumerable businesses close their plants, at least partially, in preference to making the necessary price readjustments and taking the losses which they will ultimately have to face. By so doing, each hopes to avoid the losses which are inevitable for business as a whole. Of course, the net effect of these efforts to sidestep the depression is to make it somewhat worse than it otherwise would be. As a matter of fact, many businesses would be no worse off if they continued production at their most efficient rate and took what they could get for their product. However, labor contracts are so inflexible (not to mention other fixed charges), and accounting methods are still so hopelessly inadequate in the case of most businesses, that it will probably be a long time before action of this kind can be expected. In the meantime, it will almost certainly be true that cyclical depressions will be accompanied by unemployment on an extensive scale with its attendant human suffering and irretrievable losses.

Over-Production, Under-Consumption, or What?

Among the innumerable explanations of the business cycle are those twin 'bogey-men,' over-production and underconsumption. There are individuals who point accusingly at manufacturers and other producers with the cry that more things are made than people want. And on the other hand, there are those who point accusingly at the money-credit system and denounce it for failure to furnish enough money so that people can buy and consume what is currently produced.

Both of these theories are supported, apparently, by the fact that so much productive capacity lies idle during times of depression. There is also the fact that, in this most recent depression, certain of the basic commodities have accumulated and some of the agricultural products seem to be in excess of human needs. Notable among the latter are coffee, sugar, wheat, cotton, and rubber.

It is quite conceivable that a competitive society might inadvertently devote an excess of its productive powers to the fabrication of *some* of the many articles manufactured, or might grow more wheat, say, than was currently needed for human food. It is quite another thing to assert that the existing society has done that. Even in the case of the agricultural surplus, it is not unreasonable to believe that there would be no surplus were the unemployed of the world at work and able to buy more, or better, food. And finally, although nature may have aided man in producing an agricultural surplus genuinely in excess of needs, it is quite obvious that the social group cannot, as yet, produce more of things in general than its members desire. It remains to be demonstrated, therefore, just how it is possible that there should be such strong surface indications of over-production or under-consumption in general. This demonstration will now be attempted.

It will be remembered that, during the progressive inflation which makes possible the business boom, there is origination of excess purchasing power by the banks. This swelling flood of money, in one form or another, flows out into the channels of trade with results somewhat as follows: various producers of the articles earliest affected find themselves making unusually large profits; in order to take advantage of the increasing demand, new productive facilities are planned and begun; the flood of purchasing power is turned first into one channel, then into another, until

nearly all lines of business are affected; prices in general rise, or at least are not reduced as fast as savings in costs of production would otherwise warrant; shortly, the entire business world becomes adjusted to a higher level of prices and costs.

Now, in order to maintain and continue the inflationary progression just described, larger and larger volumes of bank credit are needed. Finally, the banks reach the limits of their legal reserves, as in 1920; or perhaps the main speculative structure topples like an inverted pyramid, carrying the margin speculators to their ruin; or possibly the failure of the inflationary progression to continue at an accelerated rate causes a falling-off in business profits. In any event, a period of liquidation sets in which reverses the inflationary process. This had best be described in detail.

Reverting once more to the simple illustration of inflation given in Chapter III, it will be remembered that the capitalist involved was assumed to have borrowed bank credit based on, or secured by, some of the common stock representing ownership in the various businesses. *In so far as this loan exceeded the savings held by the bank concerned, there was inflation*. At the time of the collapse of a boom, it becomes necessary for banks to call such loans, in part at least, or to sell other assets such as their outright investments in bonds. Whichever procedure is followed will have the effect of withdrawing purchasing power from circulation. Because the Federal Reserve Banks are also curtailing their credit extensions at such times, this purchasing power, in the form of deposit currency for the most part, will simply pass out of existence. Hand-to-hand currency likewise decreases in volume (unless there is hoarding on a large scale).

But production in general is stepped up and expanded under the stimulus of a progressive inflation. There is, necessarily, some time lag between the beginning of production and final consumption of finished articles. Furthermore, it takes time for producers in general to realize that the end of a boom has come. Consequently, innumerable articles are in and on the way to market priced at prosperity levels long after the turn of the tide has occurred. The absence of continued inflation plus the withdrawal of purchasing power by individuals and others in order to pay bank loans cause a shortage in effective demand for goods. The purchasing power returned to the banks to settle indebtedness is, of course, retired from circulation.

Under the circumstances as above outlined, it is not surprising that goods do not meet purchasers in the market-place; that factories have apparently produced more than is desired; that consumers appear not to have the funds to buy that which they have collectively produced. Naturally, the situation is remedied only after a long and painful series of price reductions, wage reductions, and reductions in the cost of living in general.

Credit Extensions to the Consumer

Installment sales have introduced a problem of especial importance in recent years due to the great increase in transactions of that character. The practice is too familiar to require detailed explanation of the *modus operandi*. Many dire predictions have been made as to the outcome in a period of depression, but facts are not as yet available which justify final conclusions. Parenthetically, it may be advisable to add in this connection that the statistics on the subject currently available are not at all satisfactory. In the case of General Motors Acceptance Corporation, for example, it is understood that the actual repossessions are for the most part hidden by an arrangement which forces dealers to take back a car on which payments are *less* than ninety days in arrears. Repossessions of this kind apparently do not show as such on G. M. A. C.'s books. If the experience of some dealers interviewed by the writer is any indication, the statistics on repossessions would tell quite a different story but for this arrangement. Suffice it to say that experience has not yet finally settled the question from the consumer's viewpoint. However, it is with a somewhat different aspect of the matter that we are here concerned. It is desired to ascertain what effects, if any, installment sales may have on the degree of inflation and consequently on causal maladjustments of the business cycle.

While the consumer borrows purchasing power from the finance company involved, it must be remembered that the finance company in turn obtains its funds from the banks. A partial exception to this statement exists in those cases where the finance company has issued bonds or has otherwise obtained a large capital for its own use directly from investors. Generally speaking, however, the finance companies borrow from banks by the process of discounting their own notes secured by negotiable paper evidencing customers' indebtedness.

Now, it is clear that the purchasing power thus obtained from the banks may either be *originated* by the banks, in whole or in part, or it may be part of the savings or time deposits of the banks. That is to say, the money or credit may be from funds already deposited with the banks and not otherwise invested. Such funds would be evidenced by amounts under the semi-permanent liabilities or savings type of items. On the other hand, the credit to a finance company's account as a result of discounting its note may be of the same type as the credit based on goods produced, as illustrated in the simplified example already discussed at some length.

At first thought, it may appear that an installment debt is of the automatically self-liquidating variety because it is planned to cancel it by regular payments over a definite period. But the criterion of the automatically self-liquidating asset, as distinguished from that of the investment type, is that the actual goods or other tangible articles must appear on the market within the period of the loan and by their sale provide the means of repayment. It is plain that an automobile, for example, sold on the time-payment plan does not again appear on the market during the period of the installment contract. The article is already in the hands of the ultimate consumer, and in the normal case the payments are made by deductions from his current income. Under these conditions, the finance companies' notes secured by installment paper must be regarded as assets of the investment type.

The proposition becomes more clear by reversion to the simple illustration already presented in Chapter III. If the wage-earners in that situation were lent $100.00 in purchasing power via a financing company and an *origination* of bank credit, there would be an extra $100.00 on the demand side of the market with resultant inflationary effect. On the other hand, if they were lent $100.00 of savings deposited by other individuals (assuming all remainder to have been so deposited), there would be no lack of balance between purchasing power and goods in the market.

It is true that the effects of a single inflationary loan would not be very great and would soon be cancelled out as the loan was repaid. However, in prosperous times there is a tendency for such borrowings to increase at such a rate that the total is constantly growing in spite of repayments. In so far as these are inflationary in nature there is an artificial stimulation of the industries directly involved which inevitably has

widespread ramifications. For example, it leads to over-optimistic estimates of future growth and invites wasteful and unwise expansion, as the automobile companies perhaps realize.

There are other aspects of the installment-sales problem too numerous to mention. The foregoing brief discussion will suffice to bring out the particular relations of this problem with the causal maladjustments of the business cycle. Consumer credit may aggravate the degree of inflation, and this particular item, it should be noted, is not at present accurately ascertainable from published banking statistics. It is certain that definite information on the subject would shift a rather large amount from item number 7 to item number 5 (see Appendix A) and thus portray a somewhat greater degree of inflation in 1929 than the available data indicate. For the practical development of this criterion of inflation such information could be readily obtained.

What About Commodity Prices?

It will be recalled, perhaps, that the 'new era' economists who flourished during 1929 emphasized repeatedly the basic soundness of the economic situation. Business was fundamentally sound, according to their notions, even after the stock exchange panic. In large part, their contention that the prosperity then enjoyed was of the permanent variety was based on the grounds that commodity prices revealed no signs of inflation. There were many who held that, since commodity prices in 1929 averaged below such years as 1923 to 1926, there was obviously no inflation.

The course of subsequent events has proved, beyond any shadow of a doubt, that the situation in 1929 was decidedly unsound. Furthermore, the criterion of inflation herein discussed establishes the fact that the unsoundness was due to a marked degree of inflation. It is safe, therefore, to assert without qualification that the *absolute* level of commodity prices is not a reliable indication of the presence or absence of inflation.

But it is one thing to decide that commodity prices fail to indicate the degree of inflation and another thing to demonstrate logically how that situation can exist. It is that demonstration which will now be attempted.

To begin with, it is necessary to point out that the level of commodity prices is necessarily a relative matter. It is not enough to compare the

absolute level of prices without taking into consideration the long-term trend, which is to say, the level which would exist in the absence of inflation. Obviously, determination of that level at any particular time would not be an easy task. However, consideration of that aspect of the problem reveals a possible solution to the so-called commodity price paradox.

It is widely known that much of the war-time production was highly inefficient, that very little attention could then be devoted to major technological improvements, and that, in general, both capital and labor were wastefully used. Production of that character is necessarily expensive production. It follows that prices naturally reflected that situation.

Now, it is also true that, during the period 1916 to 1920, there was inflation in marked degree, world-wide, and all-inclusive. This condition likewise tended to raise prices in general. The combination of the effects of the two forces is clearly reflected in the graphs showing the price-level of wholesale commodities. (Chart XV.) From the data available thus far, no one can say what the level of prices would have been in 1920, in the absence of the marked inflation of that period. It seems reasonable to suppose, however, that under the methods of production then in effect there was what may be called a normal level of prices corresponding to the then existing standards of efficiency. For convenience in illustration, this level will be assumed to have been 150 (1913 at 100), as compared with the absolute high of 300 (or thereabouts, depending on the index utilized).

In the past decade, industry in general, including agriculture, which is today becoming an industry in some sections, has vastly increased its efficiency. Just what this change amounts to in terms of lowered production costs as a whole is very difficult to estimate. In some cases the gain in efficiency has resulted in doubling production per man. In others there has been less improvement, while in a few there has been even more. Of course, these gains have been translated into lower commodity prices to some extent and have undoubtedly reduced the theoretically normal level. To be specific, it is possible that, in the absence of any degree of inflation, commodity prices by 1929 might have been back at 1913 levels, or even lower.

With the foregoing in mind, the existence of stable commodity prices contemporaneously with marked inflation is readily explained. While prices have been stable or perhaps slowly declining into 1929 in absolute

dollar units, they have quite probably been rising relatively to the price-level which would have existed in the absence of inflation.

Inasmuch as no index has been prepared which indicates the normal (without inflation) commodity price-level, it is manifestly impossible to prove the foregoing hypothesis. However, it is an explanation which agrees with the widely advertised technological advances of recent years, and with the trend of prices during 1930 and 1931.

(Added September 8, 1932)

Just as this book was going to the printer, there appeared in *The Annalist* a very interesting article which confirms the explanation above. Based on the periods following the Napoleonic and Civil Wars, the author of the article deduced a mathematical formula for the normal trend of commodity prices in returning to a pre-war basis. The extent of the war-time rise in the price level was comparable during the World War. The date of return to a pre-war level in this most recent period agrees very closely with the computed theoretical trend. However, the interesting feature is that from 1922 to 1929 the level of prices was nearly stable absolutely, and was *rising relatively* to the computed normal trend. The author also makes the interesting suggestion:

> … In other words, the portions of the two curves discussed above are in inverse relation to each other, and the area inclosed by the apparent parallelogram can very well represent a period of inflation. ('Mathematical Analysis of Post-War Price Falls,' by Walter F. Eade, *The Annalist*, August 26, 1932.)

Here, then, is still further confirmation, from independent sources, of the basic principles explained in this book.

CHAPTER VIII

A Discussion of Various Popular Panaceas

The Foster and Catchings Plan for Perpetual Prosperity

One of the seemingly inevitable accompaniments of hard times is the series of panaceas or cure-alls proposed by numerous well-meaning individuals in the expectation that the readjustments incident to inflationary maladjustments can somehow be avoided. These plans for permanent prosperity may range from such relatively innocuous schemes as the 'sunshine' clubs of 1908 to the more dangerous forms of bootstrap-lifting proposed by the late William Jennings Bryan. Happily, the country has not, as yet, adopted any of the more dangerous of these intriguing ideas.

In one respect, all these schemes are alike; that is, in their refusal, tacit or otherwise, to believe that a period of depression is the necessary readjustment following a period of progressive distortion of the economic situation. In consequence, the cure-alls suggested are directed at the immediate evidence of the depression rather than at the underlying causes. This fact in itself is sufficient ground for discarding the panaceas without further consideration. However, some have attained such popularity in the recent past that a brief examination of them, especially in relation to the subject in hand, is warranted.

The plan proposed by Foster and Catchings, as outlined in their

book, 'The Road to Plenty,' has received support from President Hoover and others in high places. This fact has been mentioned in the preceding chapter. The plan had already been given a trial early in 1930 when new construction was initiated on such a large scale by public and private agencies. The scheme failed to accomplish its purpose, but its proponents have insisted that the test made was inadequate. It is necessary, therefore, to examine the principles on which the plan is based in order to determine whether or not it is sound.

Although the scheme is mistily nebulous in certain of the important details, in general it appears to be as follows:

a. The federal, state, and municipal governments are to plan in advance various construction projects which, although necessary, are to be of such nature that they may form a 'construction reserve.' Presumably, all preliminary engineering in connection with them, including surveys and preparation of detailed plans, will be completed in order that work may be started at any time.

b. A public body of some nature, perhaps one similar in composition to the Federal Reserve Board (in discussing the plan in 1928, Governor Brewster mentioned the Federal Reserve Board and system as an excellent solution of those troubles which formerly beset the financial realm), is to decide when work should begin on the various public projects. In reaching its decision this board is to be guided by certain indexes, some of which, according to Governor Brewster, are 'already becoming available.'

c. Since depression is the result of under-consumption, according to what may be termed the Foster and Catchings theory, it is expected that the additional purchasing power placed in the hands of the workmen employed on the numerous public enterprises will immediately remedy impending difficulties. In the words of Governor Brewster again, 'The release of three billions in construction contracts by public and quasi-public authorities would remedy or ameliorate the situation in the twinkling of an eye.'

Such is the plan which is to checkmate those forces which would ordinarily bring widespread depression and unemployment. The scheme is based on theories developed by Foster and Catchings in the book already mentioned. The underlying principles may be briefly stated (it is hoped with full justice to the authors) as follows:

1. Depression is the result of over-production or under-consumption, and, since human wants have not yet been satisfied, it would appear that under-consumption is the real difficulty.

2. Under-consumption is the result of excess savings, or, in the words of the authors, 'Savings cause a shortage of consumer buying, unless the deficiency is made up in some way.'

3. The remedy is to place additional purchasing power in the hands of the consumers at the first signs of maladjustment. This may be easily accomplished by expenditure of funds on government construction projects.

It will be observed that the nucleus of the foregoing principles is to be found in that portion of the second which is taken from the book itself. That is to say, the entire proposition is based on the idea that savings, unless otherwise compensated for, cause a shortage of consumer buying. Now, on the face of it this appears to be a reasonable supposition. However, a very brief investigation will reveal the fallacy.

In the first place, savings are necessarily made from income. And income, as will be recalled from the simple illustration of money-credit functioning already discussed, is derived from production of articles which are to appear on the market. In other words, money income is nothing but the means of distributing to individuals or groups their respective shares of current production. This is true regardless of how the income may have been obtained. The rich man clipping coupons, the poor man digging ditches, the beggar on the corner, the thief who robs a safe, the doctor, the lawyer, yes, and even the Indian chief who is receiving oil-well royalties are one and all obtaining incomes which are nothing more nor less than title to goods currently produced. Even where the process is indirect, as in the case of the professional man, it is still true that the income is title to current production, but in his case the title has been transferred to him by its former owner or owners in exchange for services rendered.

Current savings, therefore, are transferable titles to goods currently coining to market. If it were the custom for all individuals who saved to bury their funds in a hole in the ground, or hide them in a sock, there would undoubtedly be a tendency, if savings as a whole were increasing, for demand to be less than supply. Some purchasing power would be

withheld entirely from the market. But such is certainly not the custom to any appreciable extent. As is well known, savings are usually placed in a bank, or with an investment organization of some kind, or are invested directly. That is to say, savings are simply handed over to some other agency which may desire to spend them (and pay for the privilege, of course). This means that savings do not remove purchasing power from the market-place, but make it possible for some other than the original receiver of income to spend the funds and obtain the use of the corresponding goods. (It will be understood that, by 'corresponding goods' we mean corresponding in value rather than identical in substance with those which any particular income may represent.)

The foregoing is so evidently a statement of obvious facts that it is difficult to see how savings could have been supposed to reduce general purchasing power. Saving, as commonly practiced, has not the slightest effect on the total of consumer buying power. Such being the case, any theory advocating compensation for the supposed shortage of consumption because of savings is necessarily fallacious. It follows that the scheme is erected on false principles and is unsound.

It is not essential to rest the case against this particular method of bootstrap-lifting on the evidence just presented. There is another major difficulty which hinges upon an incorrect view, or possibly a complete lack of understanding, of the money-credit system.

The cure proposed is for various governmental agencies to institute construction on large public projects at the first signs of depression. As already mentioned, it is planned that the large sums spent on such projects would greatly add to the purchasing power of the public. Now, these vast sums of money would have to be obtained from some source, and several are available. The money might be accumulated as savings from past tax collections; or it might be derived from increased current taxes; or it might be obtained by new issues of paper money; or it might be obtained through the sale of government bonds. Each of these methods will be considered in turn.

If the sums to be spent were accumulated from past taxes, the Government would be indulging in that very dangerous act of restricting current consumption. But this is to use Foster and Catchings' basic principle in a reduction to absurdity. Since the principle is false, it will hardly do to

be content with thus disposing of the question. Governmental savings will presumably be deposited in banks, which is to say that other individuals will spend them. Should the governmental agencies desire to use the funds, the banks must turn over current savings to the public bodies until the amounts are made available. But this can only result in governmental agencies spending funds which would otherwise have been spent by other borrowers. Certainly, no net addition to general purchasing power could result.

If the sums to be spent were derived from increased current taxes, it would obviously mean that the taxpayers would have just that much less for purposes of consumption themselves. By no process of higher mathematics, nor by any kind of modern accounting is it possible to divide a given sum of money among individuals of a group so that the total purchasing power involved will be greater than the original sum.

If the amounts to be spent were derived from emission of paper currency, the degree of inflation would be augmented, and, unless some way could be found to halt the process, the dollar would emulate the German paper mark of unsavory reputation. This particular expedient has been tried so often that no one with even a grammar-school knowledge of history should be misled by the rosy promises made in its behalf.

If the sums to be spent were obtained by the sale of government bonds, either of two distinct conditions or a combination of them would result. The bonds might be purchased by banks with savings placed at their disposal (or by individuals with their savings). This, however, reverts to the first situation, involving only a transfer and not an addition to total purchasing power. On the other hand, the bonds might be purchased by the banks, with the help of the Federal Reserve Banks, by the origination of credit, just as the war-time inflation was arranged. Conceivably, both situations might exist. It is apparent that, to the extent the banks *originated* the purchasing power with which bonds were bought, there would be added inflation precisely similar to that already described, an inflation which would be recorded in the rise of the index of inflation to higher levels. But it is just this kind of abuse of the money-credit system which causes the evils it is desired to eradicate. Surely there is nothing to be gained from making a bad matter worse before it is allowed to get any better.

So much for the Foster and Catchings theory of planned prosperity and the construction reserve which is to remedy cyclical depressions in 'the twinkling of an eye.' There are a few other difficulties involved in the scheme, but it was desired to point out here only those errors in logic which are made manifest by a correct understanding of money-credit functioning. Some keen observer has declared that there are no limits to the pains men will suffer in preference to logical thinking. It is safe to say that no group of men bears evidence to the truth of this observation more faithfully than the band of bootstrap-lifters who would save us from the consequences of our economic blunders.

An Analysis of John Maynard Keynes's Solution

In a recent work ('A Treatise on Money,' 2 volumes), Mr. Keynes has set forth in detail his understanding of the difficulties primarily responsible for the business cycle. His logic is, for the most part, above criticism and his exposition is remarkably clear. It is not too much to say that his book is a major contribution to the subject. It is, therefore, particularly unfortunate that his conclusions should be vitiated by the combination of one or two minor slips and the fact that he seems to be afflicted with a mental 'blind spot' in respect to certain functional relations of the money-credit mechanism. The latter is quite probably the result of approaching the subject from what may be called the conventional side rather than the consequence of intellectual weakness on the part of Mr. Keynes.

A study such as that presented in the two volumes deserves more detailed consideration than it can possibly be given within the limits of this chapter. On the other hand, it is too important to pass by because of spatial limitations. Accordingly, only one or two major points will be discussed herein. These will include the following: Keynes's viewpoint as contrasted with the contentions of Foster and Catchings; the major thesis of real value in Keynes's solution; and reasons for believing that his conclusions fail to solve the problem.

Keynes himself attempts to clarify the difference between his and the Foster and Catchings explanations. It may be as well to let Keynes speak for himself. His words are, therefore, reproduced from page 178 of the first volume as follows:

Economists are familiar with a class of theories which attribute the phenomena of the Credit Cycle to what is described as 'Over-saving' or 'Underconsumption.' At bottom these theories have, I think, some affinity to my own. But they are not so close as might be supposed at first sight. The theories of Bouniation and the European writers influenced by him, of Mr. J. A. Hobsen of England and of Messrs. Foster and Catchings in the United States, who are the best-known leaders of this school of thought, are not in fact over-saving or over-investment theories, if these terms be given the same sense which I have given to them. They have, that is to say, nothing to do with saving running ahead of investment or *vice versa*. They are concerned, not with the equilibrium of saving and investment, but with the equilibrium of the production of instrumental capital — goods and the demand for the use of such goods. They attribute the phenomena of the Credit Cycle to a periodic overproduction of instrumental goods, with the result that these instrumental goods facilitate a greater production of consumption goods than the purchasing power in the hands of the public is capable of absorbing at the existing price-level.

In so far as these theories are capable of any reconciliation with mine, it is at a later stage in the course of events; for in certain cases a tendency for the rate of investment to lag behind the rate of savings might come about as the result of the reaction from over-investment in the above sense. In so far, however, as these theories maintain that the existing distribution of wealth tends to a large volume of saving, which leads in turn to over-investment, which leads to too large a production of consumption goods, they are occupying an entirely different *terrain* from my theory; inasmuch as, on my theory, it is a large volume of saving which does *not* lead to a correspondingly large volume of

> investment (not one which *does*) which is at the root of the trouble. (Italics according to Keynes.)

For the time being, the foregoing will serve. Prior to closing this part of the discussion, Mr. Keynes's statement will be subjected to further scrutiny. In the meantime, certain relations which he has successfully established will be pointed out.

By far the most important conclusion reached by Mr. Keynes is that, for equilibrium in the economic realm, current investment must be balanced by current savings. It is much to his credit that he has clearly and forcibly established this thesis. Of course it is true that the present writer reached that conclusion some five years ago and has pointed out its significance in published articles during the past four years and more. Nevertheless, Mr. Keynes's proof of this point, in terms more familiar to the professorial school than to the business man, is most satisfactory confirmation from a reliable source. It is apparently because of the 'blind spot' already mentioned that Keynes has failed to grasp the full significance of the theory which some of his conclusions so successfully support.

One of the most unfortunate, yet revealing, attempts made by Mr. Keynes to clarify the situation is in connection with his simplified society which consumes bananas and nothing else. First picturing production and consumption as being in equilibrium, Keynes then imagines the results of a savings campaign undertaken in the community. Current production of bananas continuing at the same rate as before meets insufficient purchasing power in the market-place with resultant fall in the price of bananas, loss to producers, unemployment, reduced wages, et al. There being no other business than banana production, savings are not immediately invested and the business cycle is the result. This parable or illustration is not as illuminating as it may at first appear to be, because conditions in real life are quite dissimilar. In the first place, there is not the slightest evidence that savings tend to grow abnormally just before a business depression. In fact, the reverse is the case. Secondly, although in the later stages of the cycle, savings (in banks, at least) grow for a time at a faster than long-term rate, there is no evidence that such savings are withheld from investment. It is not the custom of bankers to accumulate idle funds.

Finally, Mr. Keynes decides that the banks, by their policies with respect to interest rates, determine whether or not entrepreneurs will

borrow and invest the full amount of current savings. A bank rate higher than the 'natural' rate of interest is seen as discouraging investment relative to savings with the attendant discouraging results known as depressions. The solution suggested is, therefore, for the banks to regulate their rates so that investment shall proceed at as rapid a rate as savings are accumulated.

It will be observed that Mr. Keynes's explanation is much like the Foster and Catchings idea in that the banks are held to be delinquent in the emission of funds. The contention of Foster and Catchings is that this shortage of funds is restricting the distribution of goods, the production of which has been made possible by increased investment. The hypothesis presented by Keynes, on the other hand, argues that this shortage of funds restricts new investment. The two are alike in that the banks are regarded as guilty of hoarding, of refusing to place in circulation the funds essential to carrying on business. Surely, Bryan would recognize his 'cross of gold' in either guise.

A vital objection to Mr. Keynes's theory is the indisputable fact that the banks do not hoard or restrict the emission of purchasing power, but rather originate more than is justified by the goods coming to market. Certainly there is nothing in the extensive statistics herein compiled to suggest that the banks are guilty of hoarding funds, of refusing to lend purchasing power either to entrepreneurs or consumers.

There are other aspects of Mr. Keynes's thesis which should not pass unchallenged. For the time being, however, the foregoing must suffice. His principal parable is defective; he has failed to account for the cycle; and his remedy is calculated to make matters worse. In spite of this he has gone far, and has expressed his ideas with a clarity and logic all too infrequent in the works of economists.

What About Stabilization of the Dollar?

Dr. Irving Fisher's book, 'The Money Illusion,' and his other more erudite contributions to literature on the subject are possibly familiar to readers of this paper. It is perhaps also known that there is a Stable Money Association in existence, sponsored by many distinguished economists and others. Consequently, the evils resulting from an unstable unit of purchasing power have been rather thoroughly discussed. The fact that a rising

dollar is favorable to creditors and that a depreciating dollar is favorable to debtors as a class requires, it may be assumed, no further elucidation.

So far as the present writer is aware, there are two apparently different solutions offered by those interested in the problem. One is to vary the weight of gold in the dollar from time to time in order that the dollar shall always have a given value in terms of other commodities. The other scheme is to do away with the gold standard, substituting therefore a composite standard of numerous commodities, presumably so chosen as to represent the commodities used by the average family, or selected according to some other criterion which pleases the proponents of the plan.

The first of the above is deceptive in that, while it appears to adhere to the gold standard, it actually abandons it. (In other words, 'standard' implies preciseness and permanence of quantity and quality for comparative purposes. A monetary unit which was not definitely fixed as to quantity and quality of gold or other commodity could not properly be called a 'standard.') But that is perhaps to introduce complexities which do not bear on the immediate problem. At least it is evident that each of the methods is absolutely dependent on the list of commodities and other things incorporated into the guiding price index in the first case or into the new base chosen in the second case.

Nothing is more obvious than the fact that not all commodities can be included in such lists. Furthermore, there will inevitably arise the problem as to whether or not suburban land values, stock prices, rentals, and many other items involving the use of the dollar, are to be included in the index or base, respectively. If these are to be included, just how can the mathematics involved be handled? Are stock prices to be stabilized along with building lots? These questions will require answers, and there are still further difficulties.

It is evident, from a perusal of history, that an inflationary boom may derive its major impetus from speculation in almost anything. Tulip bulbs, common stocks, commodities, urban real estate, rural real estate, any old real estate (as in parts of Florida), and gold itself have all been the keystones of major speculative arches at some time in the past. Unless the chief object of the speculators' attention happens to be included in the index or base contemplated, what possible guarantee can there be against inflation which may arise in spite of the stabilization schemes? Certainly a serious situation

might well exist coincident with apparent stability of the index or base in use. (Witness the course of commodity prices during the latest boom.)

There is, of course, the possibility that a discretionary board might observe the results of an inflationary boom centering on one particular commodity or other object of exchange. Such a board could then include the article concerned in the index before a serious situation developed. But is it safe to assume that any board would be endowed with such wisdom? When it is remembered that the chief proponent of a stabilized dollar (Dr. Fisher) could find no major maladjustment in the frenzied stock-market speculation of 1929, one is perhaps justified in doubting that others of less experience would do much better. It is not to be hoped that a board, however well-intentioned, would develop a higher degree of wisdom than its members could contribute.

While the impossibility of formulating a satisfactory index or base seems to be an insurmountable obstacle, there is at least one other major stumbling-block in the path of the dollar stabilizers. The instability of the dollar is the observed effect which it is (presumably) desired to change. Both of the two cures above discussed stabilize the dollar in terms of some commodities and render it highly unstable with respect to gold and, in more or less degree, with respect to all commodities and other items not included in the index or base concerned. This is, on the face of it, not stabilization in its broader implications.

Peculiarly enough, the methods advocated by the stabilizers avoid the fact that instability of the dollar is effect and not cause, not, that is to say, the cause of its own existence as an effect. It seems a more reasonable procedure to consider the *cause* of instability of the dollar before attempting to prescribe a cure. However much Dr. Fisher and the other stabilizers may have thought on this aspect of the situation, their solutions do not reveal any attempt to deal with underlying causes. They would, in a manner of speaking, grab the dollar by the throat and force it to stabilize itself by the threat of immediate abandonment should it decline to accommodate itself to their wishes.

A bill (H. R. 10517) introduced by Representative Goldsborough in the Seventy-Second Congress illustrates the manner in which the problem has been attacked. This bill, in the first section, directs the Federal Reserve Agencies to 'take all available steps to raise the present deflated wholesale

commodity level of prices as speedily as possible to the level existing before the present deflation, and afterwards to maintain such wholesale commodity level of prices.' In other words, it orders a return to the exchange relationship between gold and other commodities which existed in 1929.

In the last section of the bill, however, the Federal Reserve Board is authorized to raise the official price of gold, when the reserve is too near its prescribed minimum, and to lower the price of gold if the gold-reserve ratio is deemed to be too high. Perhaps the reader has not realized the impossibility of reconciling two such contradictory sets of instructions. The following quotation from a letter written to Representative Goldsborough, March 31, 1932, is enlightening in that respect:

> Possibly it will somewhat clarify the situation to point out that price is merely value in exchange; comparison is always implied even if not stated. While we speak of dollar and cent prices, we are actually discussing value in terms of gold. Obviously, we cannot speak of the 'price' of wholesale commodities if the dollar is to be a certain aggregate of commodities, by definition. It is equally incorrect to speak of the price of gold today, unless we mean its exchange value in terms of other things than gold, which is not the ordinary meaning of 'price.' To discuss the price of a piece of gold in terms of dollars and cents is merely to discuss its weight.
>
> Therefore, in the first section of your bill, you prescribe that a certain relationship shall be established between gold and goods at wholesale. Then, in the last paragraph, you have provided that, in order to fix the relationship permanently, it shall be changed as often as the Federal Reserve Board may consider a change desirable. In other words, the last paragraph reduces the first to an absurdity. The logical fallacy involved accounts for the results to be expected from your stabilization scheme.

There is hardly space available for a complete exposition of those factors which determine the value of a monetary unit. It may be confidently

asserted, however, that the major fluctuations of the dollar under existing conditions are directly traceable to the causes already discussed in connection with the business cycle. Origination of excess purchasing power by the banks at the request of individuals eager to use it inevitably depreciates the monetary unit. In the simple illustration given in the preceding section, this effect is quite evident when $100.00 worth (originally) of machinery actually sells for $280.00. This is, of course, only the beginning of the process and does not show the final result of a general price-rise as these large profits are distributed to stockholders or spent in plant expansion, overtime bonuses, and the like. The extension of the principle is too simple an affair to require further elucidation. Carried to the extreme limit — that is, until the monetary unit is valueless — the phenomenon is easily recognized. (Examples are the 'shinplasters' of early American history, Confederate currency, and others.)

Two important points stand out as a result of the preceding discussion. First, the two principal plans proposed by those interested in stabilization of the dollar are inherently defective because there is no readily available and sufficiently complete index of the value of the dollar, nor can such an index easily be prepared. Secondly, those plans are further defective in that the chief underlying cause of the difficulty is ignored. (To insure justice, it may be well to mention that certain proponents of the stabilized dollar do give the business cycle a place in the problem. However, they would have the business cycle an effect brought about, at least in part, by the instability of the dollar.)

CHAPTER IX

Gold: Its Function and Significance

Prior to the panic of 1929, a few distinguished economists had discussed the possibility of a world-wide shortage of gold. Some had been so impressed with the dire consequences of such a contingency that they had recommended abandonment of the gold standard. Others were somewhat perturbed, but foresaw unfortunate effects only after five or ten years more of general business progress. During the recent period of depression there have been suggestions from numerous sources to the effect that the underlying cause of the difficulty was to be found in a world shortage of gold. All of these discussions make it desirable that this study include some comment on the function of gold in the money-credit system.

It will be remembered that, in the simple illustration given in Chapter III, no mention was made of gold in connection with banking or monetary requirements. That one particular commodity could be used in lieu of a common denominator of values was previously indicated. Designation of the particular commodity, gold, for the purpose came as the result of a number of circumstances on which it is not necessary to dwell. It will prove profitable, in considering gold, to keep in mind the fact that it is a commodity, and to discuss certain relations which, while more or less self-evident, are frequently overlooked.

To begin with, there is nothing mysterious or supernatural about

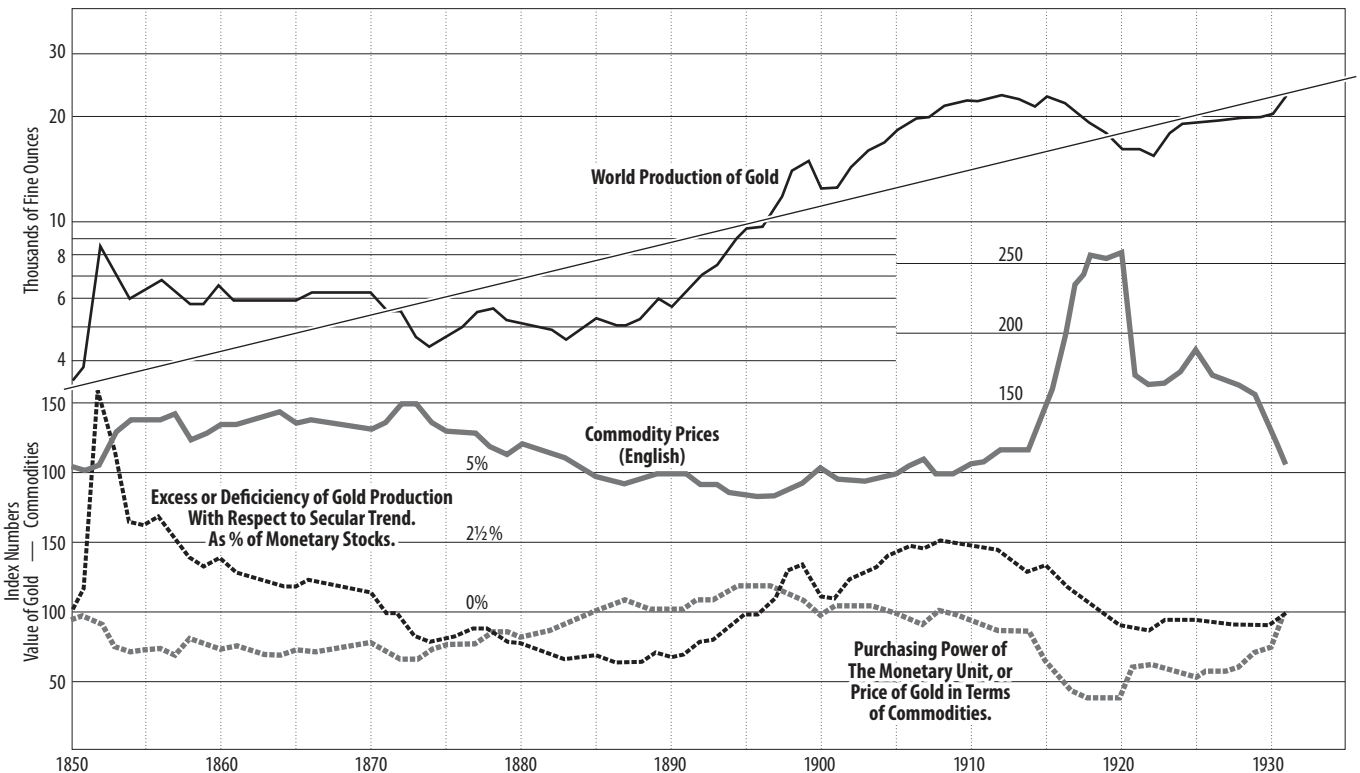
gold. It is a simple commodity, obtained by picking it up in its natural state, or by more involved methods of production. So far as its economic characteristics are concerned, there is nothing to distinguish it from many other metals ordinarily produced, with the single exception of its use as the base for many monetary systems. However, it is well known that at least one other metal, silver, has also functioned in that capacity in various parts of the world. On the whole, it does not appear that the use of a commodity as money in any way alters the underlying principles governing its production.

Before proceeding further, it is necessary to recall that price, as the word is ordinarily used, refers to the value of an article in terms of the monetary unit. And it is also advisable to keep in mind the fact that value is always relative; that is to say, comparison is always implied even if not stated. Furthermore, one should never lose sight of the fact that there is no concrete common denominator of steamships and watches, for example.

While it is true that there is no way of equating houses to automobiles, and no way of adding all commodities together to make something definite and concrete, it is nevertheless possible for the prospective miner or manufacturer to decide, within limits, what he will produce. In the normal case, the endeavor is made to produce that which will pay best, which is to say that product which exchanges for the maximum of all other commodities.

Thus it is that when the value of wheat is low in terms of many other commodities, which is to say when the price is relatively low, there is a tendency for growers of wheat to turn to more profitable production, at least on those farms where other crops are practicable. On the other hand, when the value of wheat is high in terms of other commodities, there is a tendency for farmers to produce more in order to reap the advantage of the price situation. Gold, being merely a commodity, is subject to variations in supply and demand like any other. Without doubt, when gold is low in value with respect to other articles — that is, when prices in general are high — there is a tendency for producers of gold to turn to more lucrative forms of endeavor. Conversely, when gold is high in value with respect to many other articles — that is, when prices are low — there is a tendency for individuals to devote more energy to the production of gold.

Chart XVII — Gold Production and Prices



These tendencies are reflected in annual production of the yellow metal, as is shown in Chart XVII, on page 81.

But the foregoing does not suggest any reasons for variations in the value of gold. In the case of commodities subject to the vagaries of the weather, there are wide variations in the supply entirely beyond the powers of men to control. These tend to obscure the fact that demand is also important in determining value. In this connection, it may be well to add that by demand is meant desire backed by other commodities to offer in exchange. Thus, for example, the farmer who has a good potato crop can demand other commodities, whereas his neighbor, who has suffered unfortunate reverses with respect to his crop, simply does not count as demand for much of anything, regardless of the intensity of his desires. Again, the whims and fancies of the owners of many commodities may result in a marked concentration of demand for one particular article with resultant effect on that commodity in terms of the others.

Now, the factors of supply and demand with respect to gold are in some respects unusual. The supply is not ordinarily subject to great variations, although there have been periods of marked increase in annual production. Taken by and large, however, the supply always available to the market is of such vast proportions that variations in current production can have an influence only after an extended period. On the other hand, demand is in large part fixed, or at least forced, because of legal requirements as to banking reserves. (In some countries custom rather than the law determines the amount of reserves held.) Consequently, it is difficult to believe that *normal* variations in supply and/or demand have been the sole factors in bringing about such wide changes in the value of gold.

Consider for the moment a simple barter economy in which all trade is carried on by direct exchange of commodities. Such a situation does not preclude the use of money in the form of definite weights of gold. Let it be supposed, however, that there are no other media of exchange, no credit instruments. Under such circumstances, and with the supply of gold not subject to wide variations, it is hardly conceivable that the demand for the metal would show any great changes within short periods of a few years. With progress in the arts and development of new products there would doubtless be a need for a larger volume of the circulating medium, but such changes, even in the best of times, would be relatively gradual. In

consequence of this, it is quite apparent that the value of gold would be relatively stable, albeit possibly subject to rather wide variations over long periods of time (fifty years or more).

Furthermore, it is evident that there could hardly be a general rise in prices via the stimulus of speculation concentrated in any one particular field. Suppose, for instance, that real estate were to become the object of a feverish speculation. It is clear enough that the growers of potatoes and the producers of copper would have to exchange their respective commodities for gold in order to enter into the real estate speculation, and if producers of many other goods likewise desired to speculate in real estate, they too would have to exchange their commodities for gold (or for real estate direct) rather than for any other commodities such as copper and potatoes. As a result, prices of all articles except the principal vehicle of speculation would fall, so that there would be no rise in the general price-level which included the object of the speculation. In short, *barring extraordinary variations in the supply of gold*, it is inconceivable that there should be changes in the general price-level under the conditions of a barter economy.

If, as seems to be the case, the normal interactions of supply and demand fail to account for the known fluctuations in the exchange value of gold, then there must be some abnormal influences at work. Possibly the simplest method of determining these influences will be to view the problem from the opposite point, or, so to speak, from the converse side. In order to do this, first conceive of a composite commodity which is a bundle of all articles normally appearing on the market, except gold. The actual composition of this imaginary commodity is admittedly impossible, but the conception will prove momentarily useful. Furthermore, let it be supposed that, at the beginning of the period under discussion, a pound of this commodity is called one dollar. (That is, the dollar is defined as a pound of composite commodity rather than a fixed weight of gold.)

If it be still further assumed that the Federal Government has an immense store of gold, and the power to print the certificates called dollars, the following price-fixing scheme might be undertaken. By the threat of selling some of its vast stock should the price rise, and the promise of buying all gold for sale at a fixed price in terms of the new dollar, the Government could probably peg the price of gold, at least for the time being.

If it be further supposed that, after a few months, the Government decides to change the legal definition of a dollar, making it one-half a pound of composite commodity rather than a whole pound, the following will result: Naturally, it will be necessary to double the number of dollars in circulation in order to fulfill the requirements of trade. The plight of the producers of gold will be especially unhappy. Whereas they formerly obtained one pound of composite commodity for a certain weight of gold (according to the Government's price-fixing scheme) they will get but one-half a pound under the new arrangement so long as the Government chooses to maintain the same price for gold in terms of the composite commodity dollar (because the dollar has been changed, whereas the price of gold in dollars has not changed). They can hardly take the new gold produced elsewhere in the hope of obtaining a better price, because no one will pay the producers more than he would have to pay the Government to obtain gold from its vaults. The gold producers, when faced with such circumstances, will give up their least profitable mines and continue operations only in their low-cost units. Unfortunately for them, there is always so much gold available to the market (in proportion to annual production) that their restriction of production will not be felt immediately in the form of a radical curtailment of supply.

It so happens that the actual course of events is very much as has just been described. Although the change in the composite commodity value of the dollar is not a matter deliberately initiated by the Government, it is permitted to occur by failure to correct the usual abuses of the money-credit system. Inflation, with its attendant depreciation of the dollar, is just as effective in discouraging gold production as though the Government had embarked on some arbitrary price-fixing scheme. Presentation of the matter in this manner immediately focuses attention on two important aspects of the question. The first is: Why does not the dollar continue to depreciate indefinitely, once it has started in that direction? The other is: How is it possible for the dollar to behave so fantastically without its value in terms of foreign exchange varying widely? These will be discussed in turn.

As already noted, depreciation of the dollar in terms of an imaginary composite commodity is necessarily accompanied by the use of larger amounts of hand-to-hand currency and of deposit currency (which

circulates in the form of checks). Naturally, there is a long-term upward trend in the volume of such media due to the gradual increase in trade with population growth and improvements in the arts. During a period of inflation, however, deposits build up much more rapidly than would be required to care for long-term growth at normal prices. As everyone knows, the banks are required to hold certain reserves in gold, or the equivalent, and these reserves are stated percentages of the deposit liabilities of the banks. When an inflationary progression has continued for some time, the banks find it more and more difficult to obtain the required legal reserves. (Fortunately, this difficulty is increased by the fact that high prices in general have discouraged the production of gold.) As the reserves approach legal limitations, the banks are forced to curtail new credit extensions, with the inevitable result that the major speculative boom is punctured. To the extent that its growth has stimulated business in general, there has developed widespread maladjustment, as heretofore indicated. The entire business and financial structure, honeycombed as it is with the evils of unhealthy expansion induced by the flood of excess purchasing power, shares in the collapse of the principal vehicle of speculation, and depression, with its at present all too familiar chain of phenomena, results.

It is interesting to observe, in connection with the foregoing, how experience under the Federal Reserve System has confirmed the above description of the course of events. In the absence of a real understanding of money-credit functioning, periods of inflation have been permitted to continue until the limits of expansion have been approached. The aftermath of each such experience has been a severe and lasting depression.

The next step is to answer the second question. On the face of it, it is distinctly curious that the foreign exchange relations of the dollar have not reflected its wide shifts in value (that is, its value in terms of the composite commodity). There is only one plausible explanation of this fact. It is that foreign currencies have themselves fluctuated to about the same extent.

That such has been the case is evidenced by the course of wholesale commodity prices in different countries, and is an interesting revelation of the close association between the various currencies of the principal industrial nations. This viewpoint of the matter is confirmed by the fact that the major cyclical booms and depressions appear to be world-wide in recent

years. As communications of all kinds have been improved, the world has become more nearly a single great economic unit. To such an extent has this progressed that from every hand, during the recent past, there have come repeated statements concerning the interrelations indicated by a more or less simultaneous depression in the various countries.

In spite of the fact that all countries may, and undoubtedly do, contribute to the magnitude of an inflationary boom, it is quite evident that the United States, simply because of its status as the giant producer and consumer of the world, has by far the greater influence. How far could inflation have progressed in Europe without the foreign loans which were floated in this country? How could Cuba have saddled itself with too much sugar without the use of American dollars? How could Brazil have engaged in its coffee price-fixing scheme without American credit? To ask these questions is to answer them, and in their answers lies the reason for the failure of foreign exchange rates to portray the rise and fall of the dollar.

Thus far, no reply has been made to those who see a world shortage of gold in the near future. Now, it is clear that the need of gold for monetary purposes, when it comes to a pinch, is in order that banks may maintain their legal reserves. Furthermore, it is obvious that legal reserves have been determined in a wholly arbitrary manner and that they have no logical basis in so far as the particular percentages required are concerned. Such being the case, there can be no reason for refusing to lower reserve requirements if that step ever becomes necessary. It is unfortunately true that the lowering of reserve requirements under present conditions would only invite the speculative public (which includes pretty nearly everyone, it appears) to carry the next inflationary boom to even more fantastic heights than the last. But if progress should be made in the use of the criterion herein developed — that is to say, if credit abuses were avoided — there is no reason why there should be any definite legal requirements at all. While that state of affairs may seem too close an approach to the millennium, it is at least evident that legal reserve requirements might be lowered from time to time in order to compensate for shortages of gold, if such shortages ever actually occur.

Parenthetically, it may be advisable to mention the fact that appearances during a period of rising prices are bound to be deceptive (even if the

rise is only relative to the long-term trend, as in the past few years prior to 1929). It is important to remember that rising prices mean falling value of gold, which, as suggested, discourages production of gold. Furthermore, rising prices require a greater volume of deposit currency (and other currency) to carry on the distributive process. Accordingly, there is less gold produced when there is *apparently* greater need for it. But appearances are deceiving in this instance. Conclusions based on such conditions, which are the result of inflation and are therefore both abnormal and temporary, are sure to be misleading, even to the point of inspiring vague fears in the minds of those who fail to comprehend the functioning of the money-credit system.

One of the interesting suggestions which has been made with the object of preventing cyclical fluctuations in business is that the gold reserve should be abolished and that the monetary unit should be a composite commodity. At first thought, it does appear ridiculous that any portion of the human race should be engaged in extracting gold from the ground in some localities for no other purpose than to put it back into the ground at a different place; that is, in one of the vaults of the world's banking systems. As is the case with many other human activities, however, the underlying significance of the process is not visible to the naked eye. In order to appreciate the primary function of a gold reserve, it is necessary to begin with a less complex economic organization.

Not very many years ago, on the American frontier it was customary for neighbors to assist one another in such heavy work as logging operations, barn-raising, and other tasks too great for one man unaided. In other words, if a man desired a new barn, he would arrange to borrow the services of others. Naturally, such borrowings had to be repaid on demand, and with equivalent value. At bottom, it was a process by which time units of human effort were borrowed and repaid. With the development of a more complex economic scheme, it became customary for individuals to use part of the time remaining after acquiring a bare subsistence for the production of goods to lend. Instead of borrowing man hours, the product of man hours was borrowed. Since a man's title to a share in current production soon came to be evidenced by credits to his bank account, his share of the lendable surplus was stated in dollars and cents and became known as his savings. The individual who desired to

acquire the use of another's surplus production, therefore, borrowed the dollar savings and obtained the actual goods involved by purchase in the open market.

In the present system, the fundamental simplicity of the process has been hidden. However, this must not be permitted to obscure the fact that the lender is giving up claims to time units of human effort, and that he expects the borrower to repay an equivalent amount. But with a complex money-credit scheme it is rather difficult to specify the equivalent amount to be returned for any particular advance. Naturally, lenders have insisted on some standard which would, as far as practicable, insure the return of the precise number of human effort units lent. So far, in the history of the world, no other substance has performed this function so well as gold (except that some civilizations have preferred silver). For that reason, primarily, gold has become the 'standard of value.' From the foregoing, it is apparent that the gold reserve of the banking system serves a very useful purpose. It is the best available guarantee to the lender that he will be repaid substantially the equivalent of his original loan.

Nevertheless, it may be urged that a composite commodity base would serve equally well. Possibly it would if the base could be properly constructed statistically, and if lenders had confidence in its stability. However, since the long-term (one hundred-year) trend of commodity prices seems to have been downward, it is not at all certain that lenders would be satisfied with contracts similar to those at present in general use, if the monetary unit were not gold. It seems to be the general opinion that a lender wants returned only the same goods which were involved. There is at least the possibility that he desires a return of the human effort units he has lent. A long-term downward trend of commodity prices indicates that human effort units are increasing in exchange value. Progress in the arts and increased productivity per man of articles other than gold are in the long run reflected in lower commodity prices, unless there are radical changes in gold production such as occurred shortly after the New World was discovered four hundred years ago.

It will do no harm to consider the problem from the viewpoint of a frontier group. If one of a dozen neighbors has borrowed the services of his friends for two days in order to erect the frame of a new barn, he would naturally expect to repay the loan at some future date. Suppose

that, before the final debt is paid, there is some improvement in the arts which makes it possible for the same number of neighbors to erect a house which, at the time the first barn was erected, would have required twice as many days as the barn to construct. What does the first of the dozen neighbors owe to the last one? Does the former owe the latter two days' work, or only one, inasmuch as two days' work now will mean twice as much accomplished as when the twelfth neighbor worked for the first? After all, neighbor number 12 gave up two days of his life, and it is only fair to suppose that each day of his life is just as valuable to him as the days of number 1 are, in the latter's opinion. Is number 12 to let number 1 repay the loan in such a manner that all the benefit of the improvement in the arts accrues to number 1 in the form of a reduction in the man hours to be paid? Or is a day of labor on the part of number 1 to be balanced directly against a day of number 12's labor? This problem is not so simple as it may at first appear. In any event, present contracts seem to reflect the belief of the lender that he can best insure himself a share in future technological improvements by specifying gold as the value measure involved. In other words, it seems to be the fact that centuries of experience have resulted in general confidence that gold more nearly measures human effort units, past, present, and future, than any other substance, except possibly silver in certain parts of the world. In a sense, therefore, the mining of gold and the accumulations in bank vaults make possible all the elaborate mechanism of the present economic order. Confidence on the part of the lender is a primary requisite for obtaining the large aggregations of capital involved in capitalistic production. Even Soviet Russia has rediscovered the truth of this principle.

CHAPTER X

The Federal Reserve System and Control Possibilities

It is remarkable how quickly the steps leading up to major changes in man-made institutions are forgotten. There are innumerable examples of this absent-mindedness on the part of the social group. The usual course of events appears to be somewhat as follows: a vital defect forces itself upon the attention of the public; there is a clamor for a panacea; finally, a remedy in the form of a new institution or custom is adopted, something which may or may not have received the approval of the experts; if the cure functions satisfactorily, well and good, the initial difficulty has been overcome; but the next generation, looking back, sees nothing more than the fact that an antidote for something or other has been adopted; it is only a step to the assumption that the cure, especially if it is an imposing or radical change, is a sovereign remedy for all the economic or social ills which might conceivably be related to that institution or custom.

Something like the sequence of events described has certainly happened with respect to the Federal Reserve System. A few years ago, the writer was assured by otherwise well-educated friends that the Federal Reserve System had made bank suspensions practically impossible. Of course, a total of thirty-six hundred failures in 1930 and 1931 have aroused a suspicion in the minds of the citizens that the problems involved in obtaining a sound banking system may not have been finally solved in 1914, after all.

Startling as it may seem, the Federal Reserve System was not intended as a cure for the particular economic ills from which the country has been recently suffering. The primary urge to the action which was taken by Congress was the panic of 1907. The major difficulty which it was desired to overcome was the inelasticity of the money-credit mechanism, and more particularly, the vicious circle of liquidation induced by the efforts of individual banks to preserve their legal reserves at times of financial stress. Mobilization of reserves and elasticity of the currency were the war-cries of the forces contending for a Federal Reserve System.

It cannot be denied that reserves have been very efficiently mobilized, and there is every indication that the currency is as elastic as might be desired. Indeed, it is now apparent that a major difficulty is encountered because of the fact that reserves may support such a large volume of credit and because currency may be issued as desired to provide the hand-to-hand purchasing power during a period of inflation. It is not precisely that the cure has become more dangerous than the initial disease, but that unintelligent abuse of the facilities provided has made it possible to strengthen the underlying causes of the original defect.

To be more specific, it is undoubtedly true that the business cycle of 1900 to 1910 had concealed within it the same cause-and-effect relationships already pointed out. However, the most pressing and emphatic phenomena of the cycle were concentrated in the period of liquidation when reserves intended for protection were made the object of a mad scramble attended by forced liquidation to a suicidal degree. As is so often the case, attention was concentrated on alleviating the more alarming symptoms of the economic malady of inflation rather than on curing the more fundamental difficulty. This was only natural, especially inasmuch as the underlying cause-and-effect relationships were even less fully comprehended than they are today. While, therefore, the Federal Reserve System has performed one hundred per cent efficiently with respect to the particular surface difficulties it was designed to overcome, it could not, and never was intended to, prevent the basic maladjustment which makes possible the business cycle.

Prior to the adoption of the Federal Reserve System, the banks of the country, taken as a whole, were never very far from the legal limitations governing their power to increase their deposits. In other words,

the country had grown up to its gold supply, more or less. There was, to be sure, considerable variation from year to year in the amount of legal reserves. Furthermore, the practice of permitting some banks to count as reserves their deposits in certain other banks left room for considerable juggling so that expansion in boom periods was possible.

Since the Federal Reserve System was adopted, however, gold stocks have been more 'efficiently' used. That is to say, a given weight of gold now supports a vastly increased superstructure of bank deposits and currency.

Parenthetically, it may be well to point out that the functioning of the money-credit system in 1907, for example, was such as to increase the severity of the depression. The scramble for reserves already mentioned without doubt resulted in actual curtailment of the perfectly legitimate needs of business at a time when it was especially important for those needs to be met. The Federal Reserve System has eliminated this evil, for the most part, so much so that in the panic of 1929 and subsequently, short-term money rates fell steadily. Call money, in fact, was pegged at 6 per cent, whereas in 1907 it had reached a high of 125 per cent.

The introduction of the Federal Reserve System, then, made it easy to carry inflation to degrees far beyond the maximum limits possible prior to 1914. Those who contend that inflation is a necessary accompaniment of war financing doubtless feel that without those possibilities for expansion the war could not have been financed. Be that as it may, the fact remains that more rope than ever before became available to the speculative public.

It may be asked why the Federal Reserve Board has not attempted to take up the slack in this rope which has stretched so many financial necks. The present writer is in no position to give a final answer to such a question. However, a variety of reasons may be suggested. To begin with, the number of individuals in this country and abroad who have even begun to grasp the fundamentals of money-credit functioning is decidedly small. Secondly, there has heretofore been developed no satisfactory criterion of the degree of inflation. Thirdly, the Federal Reserve Board is subject to political control to some extent. Not only does this mean a possibility of bias, but in addition an unwillingness to do anything which might be interpreted as a blow at prosperity even when that prosperity is the result

of an inflationary boom. Finally, there has been such divergence of views among the authorities, or those willing to pose as authorities, that it is little wonder the Board has been slow to act.

Now that a logical explanation of the business cycle has been found, and a reasonably satisfactory criterion or Index of Inflation has been developed, the next question is: What can be done about it? The answer is more or less obvious. By determining certain limits, beyond which inflation will not be permitted to proceed, the Federal Reserve Banks can, by selling securities and raising the discount rate, force member banks to curtail new originations of credit based on investment-type assets. It will be necessary, at first, to set the limits of tolerance at some considerable distance from normal, but with more adequate data and refinements of statistical procedure, very small deviations from a balanced condition of investments and savings should automatically set in motion the corrective influences.

Constriction is the result of hoarding, as has already been mentioned. Like inflation, it is an abuse of the money-credit mechanism. Fortunately, it is a phenomenon not often seen in this country. The Federal Reserve Banks can also counteract the effects of this kind of abuse. To do so, it is only necessary for them to purchase government securities on a large scale, so that the credits thus added to the reserve deposits of member banks may equal the estimated hoardings of currency. Such action will make it unnecessary for member banks to liquidate assets in order to meet the demands of the hoarders and will therefore make hoarding unprofitable. (The hoarder's advantage presumably arises from the fact that he has funds to use when prices have collapsed and everything imaginable is on the bargain counter.) In the case of hoarding which is the reflection of fear of bank failures, action by the Federal Reserve Banks along the lines indicated can prevent the failure of soundly operated institutions and thereby restore confidence. Naturally, the prevention of inflation in the first place will obviate such unfortunate banking experiences as 1930 and 1931 have witnessed. Hoarding, and its resultant effect, constriction, will not be likely to occur in the absence of deflationary aftermaths of speculative sprees.

So far, the discussion has centered on those features of the present economic scheme which have made the business cycle possible. The how of the cycle, the maladjustments of the money-credit mechanism which

arise, have been plainly indicated. But this does not explain *why* those maladjustments should occur. Why, for example, does John Doe choose to speculate on margin? Why do people buy automobiles they are unable to pay for or cannot afford to operate? Why is the business man willing to take a chance and erect another factory at the peak of a boom?

The answer or answers to these questions are difficult to isolate and are probably incomplete, at best. An ages-old desire to get something for nothing; keeping up with the Joneses; just plain ignorance; romanticism; greed; and no doubt many other human motives, strengths, and weaknesses are woven into the intricate pattern which explains the why. Certainly, to some extent, booms feed upon themselves. The lucky speculator tells his friends and they rush in to get their share of the easy money. Conversely, fear is spread abroad in whispers that this bank will fail and that one is not too sound. It would, indeed, be a bold man who dared claim he knew the why of the business cycle.

Fortunately, the why is not especially material to the practical solution of the difficulty. It is enough if we can prevent the cumulative abuse of the money-credit mechanism called inflation. We need not know the motivating influences behind the actions which, unchecked, disturb the economic equilibrium. It is certain, in any event, that prevention of abuse will itself go a long way toward discouraging the efforts to take advantage of such conditions.

It is not desired to conjure up a sinister money power, nor to frighten the reader into acquiescence in these theories by the help of financial bogey-men. Nevertheless, it will pay to face facts frankly. The business cycle is a constant invitation to the shyster builder and the master wrecker. Under the conditions of abuse of the money-credit system, it is more profitable to wreck a business than to run it; more money can be made by buying and selling a business, in the stock market, than by buying and selling the merchandise involved. The wonder is not that there are so many scandals in high finance, but that there are any honest men at all, on top. But this is, after all, only a side issue. It is just one more of the countless number of reasons why the business cycle must be controlled if it is not to bring, sometime, a collapse from which recovery and further advance will be out of the question.

The American business man and his brother in finance are wont to view with something akin to horror any intrusion of government into what they feel is their private business. The people in general are also distrustful of governmental experiments, and rightly so if recent history is a satisfactory criterion. It is, therefore, most important to realize that more intelligent use of the money-credit system would not involve additional interference by governmental agencies, but less.

It is not always realized, perhaps, that a money-credit system is created by the social group. An elaborate financial mechanism such as that which serves American business is entirely a man-made affair. It is an ingenious invention, if you like, a most extraordinary scheme for displacing primitive barter and facilitating the production and exchange of goods and services. But in spite of its remarkable qualities and great advantages, the fact remains that it operates under the guidance of man. Whether for good or ill, whether wisely or foolishly, it is the social group (or certain of its members) which controls the money-credit system.

This point is of the utmost importance. It must be realized that there is no possibility of leaving the money-credit system to itself in the expectation that it will function naturally, because it is not one of nature's institutions. Surely there should be no reluctance about attempting to control *wisely* that which is already controlled, albeit foolishly. Booms are made possible by erroneous use, that is to say, abuse, of the money-credit machinery. Panics and depressions are the inevitable results of such abuse, as already indicated. It seems obvious that, in exercising control over the cyclical chain of related phenomena, prevention is vastly to be preferred to cures which can be applied only after the worst has befallen. And prevention is possible via intelligent use of the money-credit mechanism. Furthermore, this prevention may be automatic in operation, based on the criterion herein, so that human judgment influenced by politics or profits will be out of the question.

Mention has already been made of the work done by Dr. Carl Snyder, of the New York Federal Reserve Bank. It is interesting to note that in an address before the National Association of Cost Accountants, Boston Chapter, on December 12, 1930, he said, among other things, the following:

> We may with certainty say this: that there never was a severe business depression and widespread unemployment, save, perchance, immediately following a war,

> that had not been preceded by a period of unusual prosperity, high business profits, and therefore almost invariably a period of wild speculation; that is to say, in brief, a 'boom.'
>
> Does it not follow clearly from this that the real and perhaps only remedy for business depression is precisely the avoidance of these speculative booms? But the difficulty always is that nobody ever wants to do anything that may be regarded as tending to 'check prosperity.' We have now hundreds of proposals and remedies for the cure of depressions, but who ever seriously urged a cure for prosperity? And yet this, in a way, is precisely the vital need, a restraint from excess.
>
> I believe that we may now go a little further in our diagnosis and say this, that no boom, no period of wild speculation, ever got under way except under an excess of credit or currency. This is the fundamental and absolute requisite of all widespread speculation; it cannot be engendered nor survive without this excess. Therefore, I believe that one important problem of the future is how to measure and control this excess of credit.

It is the important problem which Mr. Snyder mentions that is solved, more or less satisfactorily, by the present writer's Index of Inflation. And although the data are not as precise as they can eventually be made, it is quite evident that, even in its present form, the Index offers an invaluable guide for the control of money and credit policies.

Before closing this discussion of control possibilities, it may be advisable to indicate briefly the limitations of sound-money policy with respect to the correction of economic maladjustments in general. Admittedly, prevention of the business cycle in its extreme form would be a great step forward. The advantages to be derived from taking this step are almost beyond the bounds of imagination. Yet, it is quite possible that the greatest benefit would be the removal of the smoke-screen which now clouds the economic scene, and that more problems to be solved would

be found, problems at present disregarded in the confusion caused by the business cycle.

One fact is sure: elimination of the business cycle will not introduce the millennium. If that fact is realized, much disappointment will be avoided.

Under existing conditions, periods of prosperity alternate with periods of profound depression. During the former, the public loses all interest in the necessary adjustments of the social and economic scheme to changing conditions. During the latter, there is a general tendency to hysterical action which refuses consideration to all rational solutions of important problems. Thus it is probable that, although the Index of Inflation will be of great value in eliminating the evils accompanying the business cycle, its final results will have an added value in clearing the way for the solution of other grave problems.

APPENDIX A

The Basic Data, Source and Classification

1. General

In this part of the book will be found a full description of the sources of the basic data, together with a discussion of the reasons for its classification as indicated. Finally, there has been included a series of notes or comments on the accuracy of the figures presented and a brief study of the probable errors involved.

2. The Sources

The statistics compiled for the purposes of this study were taken from several sources. These will be mentioned in the order of their importance.

The *Annual Report of the Comptroller of the Currency* was the chief source of information. From it were obtained the June 30 reports of both National and State Banks for each year. In addition to that, the National Bank reports for each call date were also found therein. (Since December, 1929, National Bank data have been taken direct from the *Abstracts of Condition of National Banks*, issued periodically by the Comptroller. These *Abstracts* are now more complete than formerly.) Due to the fact that classification was not complete in all cases, especially for the State Banks, it was necessary to supplement the data given by interpolation and by estimates based on sampling. More detailed information covering this aspect

of the matter will be found in the notes on accuracy and probable errors which conclude this part of the study.

Another source of data were the *Federal Reserve Bulletins*. Statistics of the Reporting Member Banks were taken largely from this source. In addition, much useful information in regard to National and State Banks was found therein, especially the more recent issues. Statements of the twelve Federal Reserve Banks were likewise abstracted from the *Federal Reserve Bulletins*.

The *Annual Report of the Federal Reserve Board* provided certain data not available elsewhere, or which happened to be more readily available therein. It was useful, in particular, for month-end reports of the twelve Federal Reserve Banks. End-of-month dates were at times closer to the exact date of a bank call than the regular weekly reporting date.

In making interpolations, it was occasionally found desirable to refer to the course of brokers' loans as given in the *New York Stock Exchange Year Book*.

The United States Treasury's monthly statements of the stock of money in the country were also consulted, both in the originals and as reproduced in *The Commercial and Financial Chronicle* from time to time.

3. Preliminary Classification

Preparatory to the final comparisons which it was desired to make, the periodical statements of the different kinds of banks were divided in the customary manner into assets and liabilities. The former were then subdivided into nine separate items numbered 1 to 10 inclusive, omitting number 5. The liabilities were subdivided into six items numbered 11, 12, 14, 15, 16, and 17. These numerical designations are for identification purposes only and have no other significance. Numbers 5 and 13 are used in connection with other data discussed in Appendix B.

Dealing first with the classification of assets, in numerical order:

1. Building, Furniture, and Fixtures, or Bank Premises, as this item is listed according to Federal Reserve terminology, includes the items as described. This class of asset is familiar to all who read bank statements and requires no further description.

2. Investments in Securities — includes both United States Bonds and other outright investments in securities by the banks concerned.

3. Other Real Estate plus Loans on Real Estate — includes the real estate owned by the banks exclusive of bank premises. To this have been added loans secured by farm lands and by urban real estate.

4. Loans on Securities — includes all loans secured by stocks and bonds. In the case of the Federal Reserve Banks, of course, the securities involved are United States Bonds only, but in the case of other banks there are securities representing all kinds of businesses included.

5. (Not included in basic data; discussed in Appendix B.)

6. Total, numbers 2, 3, and 4 — requires no explanation.

7. Other Loans, Discounts, and Overdrafts — includes all secured and unsecured advances made by the respective banks which have not appeared in earlier items. The major portion of this represents straight commercial transactions.

8. Total Earning Assets — includes items numbered 2, 3, 4, and 7 (or number 6 plus 7).

9. Due from Banks, Checks for Clearing House, Bank Notes in Vaults, etc. — includes all assets in the hands of the banks which are in the form of liabilities of other banks. Items for collection have been included. The total of bank notes in the vaults of banks are, for each individual bank concerned, claims on other banks and have likewise been grouped under this item.

10. Vault Cash, Excluding Bank Notes — includes, it will be observed, only the gold, silver, minor coin, and United States Notes. The last named are an insignificant part of the total. Gold in the Federal Reserve Banks accounts for nearly all of this item, especially in recent years.

Dealing now with the classification of liabilities in order:

11. Capital, Surplus, and Undivided Profits — includes liabilities obviously similar in character. In this item have also been included reserves for dividends but not reserves for unpaid taxes, etc.

12. Due to Banks, Including Bank Notes in Vaults of Other Banks — includes the deposits in banks made by other banks. Naturally, the notes of one bank held in the vault of another are also included. (This portion of the notes has been deducted from all notes outstanding in order to ascertain the remainder included in Demand Deposits, see below.) It may be well to note that this item, number 12, is made up in large part of the

reserve deposits placed by member banks in the twelve Federal Reserve Banks. The remainder, at least a large part of it, consists of deposit balances placed by country banks with city correspondents.

13. (Not included in basic data; discussed in Appendix B.)

14. Demand Deposits, including Certified Checks, and Notes in Hands of Public — includes primarily the demand deposits of the banks as so classified in their statements. Certified checks are grouped with this item because they are demand liabilities in fact and because, when they are issued, someone's demand deposit is reduced by a corresponding amount. Notes in circulation or in hands of public is self-explanatory. It specifically excludes bank notes in the vaults of banks. Notes in the hands of the public are demand liabilities precisely similar to the demand deposits against which checks may be drawn at any time. It is well recognized that they serve the same purpose that certified or ordinary checks do, in theory and in fact so far as the distributive scheme is concerned. (It is true that all of the demand deposits may not be actively used as circulating media. That point will be dealt with in more detail later and, for the time being, will not be considered in connection with the classification made.)

15. Time Deposits, including Postal Savings — includes all savings and time deposits whether evidenced by passbook or certificate of deposit. Prior to 1919, the National Banks included under time deposits a small amount requiring less than thirty days notice for withdrawal. Since that time, this amount has been included under demand deposits. The total involved is insignificant, however. Therefore, it is safe to assume that the great bulk of this item represents genuine savings. The mutual and other savings banks alone account for a large proportion of this item.

16. Total Deposits, Excluding Due to Banks — requires no explanation.

17. Bills Payable, Rediscounts, Bonds Borrowed, etc. — includes all liabilities which are evidence of borrowing by the banks concerned. These are means by which the banks acquire funds for temporary use to counteract adverse clearing-house balances, or to make good impaired reserves. Bonds are sometimes borrowed to use as collateral for other loans or to hold in accordance with local legal requirements as security for public funds.

18. Total Assets and/or Liabilities — probably requires no explanation. It will be observed, no doubt, that the total may at times differ slightly from the sum of the asset or liability items as given in detail. For explanation and comment, see the notes on accuracy and probable error which conclude this part of the study.

4. The Detail

THE BASIC DATA
June 30, 1930
(Billions of Dollars)

	Federal Reserve	National	State	All United States
1.	60– 1.1%	788– 2.7%	1,023– 2.3%	1,871– 2.4%
2.	603–11.1%	6,906–23.7%	11,057–24.6%	18,566–23.4%
3.	0– 0.0%	1,598– 5.5%	10,550–23.5%	12,148–15.3%
4.	105– 1.9%	5,485–18.8%	7,781–17.2%	13,321–16.8%
6.	708–13.0%	13,989–48.0%	29,338–65.3%	44,035–55.5%
7.	794–14.6%	8,183–28.1%	7,607–16.9%	16,584–20.9%
8.	1,502–27.6%	22,172–76.1%	36,945–82.3%	60,619–76.4%
9.	714–13.1%	5,298–18.2%	5,564–12.4%	11,576–14.6%
10.	3,176–58.3%	151– 0.5%	178– 0.4%	3,505– 4.4%
11.	447– 8.2%	3,976–13.7%	6,305–14.0%	10,728–13.5%
12.	3,418–62.6%	2,931–10.1%	1,657– 3.7%	8,006–10.1%
14.	1,103–20.2%	12,238–42.1%	14,131–31.4%	27,472–34.6%
15.	0– 0.0%	8,753–30.1%	20,790–46.3%	29,543–37.2%
16.	1,103–20.2%	20,991–72.1%	34,921–77.7%	57,015–71.9%
17.	481– 8.8%	594– 2.0%	521– 1.2%	1,596– 2.0%
18.	5,453–100%	29,117–100%	44,904–100%	79,474–100%

Explanatory Note: This book has been published in the hope that it would be useful to the general reader as well as to the specialist in this field. Consequently, it has been necessary to limit the cost of production by omitting the detailed statistics. The above table contains the data for one of the eighty-three periods involved to date. Students of the subject may desire to have copies of the data for their own use. Arrangements have been made, therefore, for the reproduction of all the tables directly from the final data sheets which the author compiled for his use. This can be done at relatively low cost because none of the expensive work of page composition will be involved. Full details concerning the form of the tables and cost may be had by application to: Financial Publishing Company, 9 Newbury Street, Boston, Mass. Mr. Harwood, in the interests of scientific research, has made arrangements by which these tables will be available on a non-profit basis.

5. Explanatory Notes and Comment on Accuracy and Probable Errors

Due to the fact that full details as desired for the foregoing compilation could not be obtained directly from published data, a certain amount of estimation, based on sampling or on related data, was necessary. In order to make clear just what this involved, and the extent of probable

errors, it seems advisable to discuss each item in turn. In conclusion, a specific case will be presented in order to give an indication of the total probable error in the worst case.

Unfortunately, reasonably complete data covering the State Banks appear only for the June 30 call date of each year. Of recent years, the Federal Reserve Board's statisticians have attempted to present statements showing the condition of State Banks for each call date. These have been based on data obtained from the various states for days on or near the National Bank call date where possible. But much of the data included in these statements has been that of the preceding June 30. Consequently, the composite statements presented have been far from satisfactory. They have been referred to in checking for gross errors, but have not been used otherwise.

Some method of estimating the required data for State Banks on other than June 30 call dates has been necessary. Two guides have been available. The call date reports of Member Banks other than National, which appear in the *Federal Reserve Bulletins*, were useful. In addition, the reports of the National Banks themselves were serviceable guides inasmuch as all banks of a country must vary more or less together. Accordingly, the statements for the State Banks on other than June 30 call dates for each year have been interpolated, each item separately, using the National Bank data as a guide. The weighted mean of two estimates, based on preceding and succeeding June 30ths respectively, was used. (This paper is hardly the place for a more detailed discussion of the mathematics involved.) The probable error thus introduced will be dealt with shortly.

Items 1 and 2, with the exceptions noted above, were taken directly from the sources already mentioned. No estimates or approximations had to be made. The only possibilities of error arise, therefore, in the purely mechanical processes of copying and addition. Inasmuch as all copying was checked, and all addition was either by adding machine or was also checked, it seems safe to say that errors in addition and copying may be considered negligible.

Item 3, in so far as other real estate is concerned, was taken directly from the call date reports. Loans on real estate were not so easily segregated. For the National Banks, such loans were properly classified for June

30 of each year until December 1929. They are now available for each call date. Fortunately, fluctuations in this asset were not great. For dates other than June 30, these loans were estimated after allowance for seasonal variations in commercial loans and discounts. Since the changes were very small until the more recent years under consideration, the errors in these loans of the National Banks are insignificant.

In the case of the State Banks, Item 3 was available for a few years prior to 1914, thus furnishing a basis for estimates. With the aid of the loans on real estate reported by Member Banks other than National, and by sampling and interpolation, reasonable estimates were possible. State Banks are divided into five classes in the *Annual Report of the Comptroller.* These are: State Commercial; Loan and Trust; Mutual Savings; Stock Savings; and Private Banks. The classification of loans and discounts is set forth in great detail according to each kind of bank by states. Although much of the classification is incomplete, missing data for, say, the Mutual Savings Banks of Massachusetts for the year 1924 could be readily estimated by reference to the data for 1923 and 1925. In some cases, it was necessary to base an estimate on the similar class of banks in adjacent states. Fortunately, there were sufficient data so that the interpolation and computation from sampling provided results which are adequate for the purpose. The probable error introduced in figures for the State Banks in this item is believed to be less than 1.0 per cent of total assets or liabilities on any June 30 call date.

Item 4, the loans on securities, are accurately tabulated for the National Banks each June 30 prior to December 1929. Since that date, these loans are shown on each call date. In order to determine the proper amounts for other than June 30 calls before 1929, it was assumed that variations in this item could be estimated on the basis of the sampling provided by the Reporting Member Banks. Inasmuch as the data for these banks are available only from 1919 on, earlier fluctuations were based on general changes in Loans and Discounts, Total, after allowing for seasonal commercial borrowings. This method is believed to be quite satisfactory inasmuch as variations prior to 1919 were not great. For the State Banks, it was necessary to use the data provided by Member Banks other than National in conjunction with estimates similar to those made for Loans on Real Estate as described above. It is believed that errors do not exceed

1.0 per cent of total assets or liabilities. The probable error is, of course, much smaller. It may be well to point out at this point that, even in those cases where the estimates made are in error as much as 1.0 per cent, the resultant error introduced in the data for all banks of the country would be but little more than 0.5 per cent. This is due to the fact that State Bank security loans constitute, on the average, about 60 per cent of the total of such loans.

Item 5 will be discussed in Appendix B.

Item 6 involves only simple addition of items 2, 3, and 4. For all banks of the United States the error introduced by the inaccuracies of the State Bank estimates above noted does not exceed two-fifths of the error in State Bank figures. In other words, assuming what is believed to be the worst case, the error is not greater than about 0.5 per cent. (Referring to item 6 for All United States Banks.)

Item 7 was found by deducting from total loans and discounts the loans on real estate plus loans on securities. Necessarily, the errors in these two items are reflected in item 7, but in the contrary direction. For the State Banks this error may be as great as about 3.0 per cent. Since the commercial loans of State Banks are only 45 per cent of that item for All United States Banks, the error in the larger item does not exceed 1.4 per cent. In view of the fact that this item is not used in connection with the principal conclusions of this paper, the error need cause no concern.

The June 30 figures for item 8 are substantially accurate. For other dates also, there is little danger of material inaccuracies. As already mentioned, *Federal Reserve Bulletin* estimates and statements of Member Banks other than National were helpful in checking this and other items.

Item 9 involves estimation only for that small portion thereof, bank notes in vaults. For the National Banks, it has been possible to ascertain the notes in vaults from the data contained in the *Annual Report of the Comptroller.* Estimates for the State Banks have been based on the assumption that a like proportion of vault cash was in the form of notes. This subdivision of item 9 is so small, however, that even very large errors (up to 15 per cent) would not affect the total of item 9 as much as 1.0 per cent.

Item 10 is relatively unimportant. Obviously, in the case of the State Banks, there is a possibility of considerable error. Because this item is small

anyway, except for the Federal Reserve Banks, there is no appreciable error in the figures for All United States Banks.

Item 11 is substantially accurate.

Item 12, Due to Banks, etc., is derived directly from published figures with the exception of that small portion accounted for by Federal Reserve Notes and National Bank Notes in the vaults of other than the issuing banks. The effect of any possible errors in estimating those two items is negligible because they are such a small part of the total.

Item 13 will be discussed in Appendix B.

Item 14, Demand Deposits, etc., is without substantial error in so far as the National Banks and Federal Reserve Banks are concerned. In the case of the State Banks, the situation is not so ideal. Many of the June 30 figures for these latter institutions are not fully classified in the original sources. It was necessary, therefore, to deal with each of the five classes of State Banks separately and to build up the desired total by estimates for each state individually. Fortunately, there was a great deal of data available for sampling purposes and in many cases quite simple interpolation solved the problem. The possibilities of error were not so great as may appear at first thought. Of all banks in the country only one-half of demand deposits were accounted for by State Banks. Of this smaller amount, about one-third was unclassified. In turn, a large portion of this consisted of savings banks deposits, about which there was no question. Finally, not more than half of the unclassified total would be liable to error, which may perhaps be as large as 5.0 per cent in some of the worst cases. It is obvious that even an inaccuracy of this size affects the total for All United States Banks by only 0.4 per cent, or thereabouts.

Item 15, Time Deposits, is, of course, affected by the estimates described above. With proportional errors, it is readily seen that the error in the total for all banks of the country may be as great as 0.6 per cent. Since this item is not used alone for the most significant results obtained, the effect of an error of this size on the principal conclusions may be disregarded.

Item 16, in view of the foregoing, requires no discussion. It is substantially accurate. The same applies to items 17 and 18.

It may be well to emphasize the fact that the remarks above apply particularly to the June 30 figures except as otherwise noted. Since all the

State Bank data for other call dates were necessarily subject to estimate, the probable errors are unquestionably larger for these dates. They are not of sufficient size, however, to make more than minor alterations in the graphical presentation of results. It may be stated as a fact that the principal conclusions of this study would not be vitiated by any conceivable errors introduced by the necessary estimates.

It is, of course, certain that in any statistical compilation of this size there are simple mistakes in addition and subtraction. The writer, while he has exercised great care, does not pretend that perfection has been achieved. However, the methods of checking used, and in particular the plotting of all percentages in a series of 100 per cent bars have probably removed any possibility of gross errors in addition or subtraction.

Although the foregoing discussion of probable errors et al is far from complete, it is believed that the subject has been covered sufficiently well to indicate the trustworthiness of the data presented. This is a vital point in a study of this nature which attempts to give an explanation of the business cycle which is supported by the facts. A more detailed exposition of the errors involved and the mathematical computations of probabilities must be left to another time or to other individuals who may be interested in that aspect of the matter.

If these remarks have sufficed to satisfy the reader that the data presented are reasonably close to the truth, especially in the light of later deductions, the purpose of these notes will have been accomplished.

APPENDIX B

The Index of Inflation and Related Data

1. General

In this part of the book it is planned to present various forms of the Index of Inflation which is believed to be the vital criterion developed. Preceding that will be found a discussion of the data useful in its preparation including the reasons governing the selection of certain items. The Index of Inflation is shown in a ratio form. Other features of the subject interesting to the student are dealt with briefly.

2. Selection of Critical Data

In an earlier section of the book it has been made plain that changes of vital significance occur in portions of the data compiled in Appendix A. Some additional discussion may clarify any doubtful points. Obviously, mere growth is of no consequence because it proves nothing but growth. For example, while loans on securities (item 4) have grown from $3,574 million in 1914 to $14,985 million in 1929, this startling change has no real and definite meaning unless it is possible to say whether or not such loans should have expanded in that proportion.

Furthermore, although the changes in the subdivisions of total earning assets (item 8) are quite marked, they are more interesting than definitely instructive. Again, the decline of vault cash from 5.7 per cent

of assets to 4.2 per cent during the period covered is merely another interesting phenomenon lacking in precise meaning.

It is true that many comparisons might be made along the lines already mentioned, and ratios might be developed, which would lead an experienced, or possibly biased, observer to infer thus and so. Evidence giving rise to suspicions and evidence constituting real proof are two different qualities of evidence, however. It is apparent that the latter is desired if obtainable.

If comparisons between asset items alone or between liability items alone are bound to be inconclusive, as it seems they must be, the sole remaining possibility is to develop a ratio between a group of asset items on the one hand and a group of liability items on the other. Variations in such a ratio over a period of years may prove instructive.

At first thought, none of the asset items may appear to be definitely related to any of the liability items. However, on careful consideration of the true significance of each item, the manner of its origination, and the use of funds which it indicates, it becomes apparent that assets and liabilities may each be divided into two broad classifications.

In the case of the assets, classification may be made into investment-type and automatically self liquidating assets respectively. By an investment-type asset is meant one which is of the long-term variety; one which is liquidated only over a long period, presumably yielding a return in the meantime. On the other hand, the automatically self-liquidating asset is one which, in the normal course, appears on the market during the period of its existence as a bank asset, thus providing the funds which reimburse the bank concerned. It is important that the dividing line be clearly comprehended.

The division is not into degrees of liquidity, or salability. There is no sharp dividing line in the realm of liquidity (in the sense of mere ability to convert into cash). It may be possible to sell government bonds more expeditiously than a loan on securities may be called, and the latter may be convertible into cash more readily than a merchant's inventory which is the asset behind a commercial loan. Liquidity, or relative salability, is always contingent upon many external circumstances and obviously furnishes no basis for classification of assets into distinct and separate divisions.

In the case of liabilities, it is seen that there are also two distinct kinds, at least. There are those which record the fact that funds have been left with the banks concerned for more or less permanent use, and there are those used as purchasing media by the holders thereof and, in consequence, subject to more or less rapid circulation between banks.

Each item in the statement will now be scrutinized with a view to ascertaining its proper classification. In the course of that discussion, it is expected that the lines of demarcation will become more clear, that borderline cases will be disposed of, and that the reality of the classifications chosen will be fully established.

Item 1, Building, Furniture, and Fixtures, is obviously an asset of the long-term variety. It is an investment, yielding a return in the form of the services those physical facilities provide.

Item 2, Investments in Securities, is also an asset of the long-term, investment type.

Item 3, Other Real Estate plus Loans on Real Estate, may appear to consist of both classes. Without doubt, the Other Real Estate is in the nature of an investment. Loans on Real Estate belong in the same group. Bankers of long practical experience will probably not question that classification, but other readers may not see the point, so further elucidation is desirable. It is well known that, in the normal course of events, the actual real estate on which a loan is based does not appear on the market within the period of the loan. This in itself is enough to bar these loans from the second classification. But it is also true that real estate loans are, in general, for relatively long periods, years in fact. Moreover, it is usually expected that such loans will be renewed without question unless the property has deteriorated. Loans on Real Estate bear all the earmarks of long-term investments and unquestionably belong in that classification.

Item 4, Loans on Securities, may be considered even more doubtful in respect to its proper classification. There has long been a difference of opinion among economists and others in regard to the *liquidity* of these loans (a difference, it may be noted, which seems to center around a failure to define 'liquidity'). At least it is clear that this asset does not belong with the automatically self-liquidating group. It is not the normal procedure for the securities which are collateral for a loan to be thrown on the market

during the period of the loan. But it is not enough to show that this asset should not be in the second classification. It is necessary to establish its right to be included in the first. Otherwise it might be contended that there are three rather than two clearly defined classifications. Now one reasonable criterion as to the status of an asset is the status of the goods or securities behind it. In the case of Loans on Securities, customers' notes are the assets technically involved. However, these in turn rest on stocks, bonds, and like securities. Stocks are evidence of ownership, are in fact legal title to businesses and are manifestly long-term, investment-type assets. Bonds, in the case of direct bank investments, are also long-term, investment-type assets. Clearly, then, Loans on Securities belong in the first classification.

Item 7, Other Loans, Discounts, and Overdrafts, consists, for the most part, of commercial loans. In many cases there are goods in process, storage, transit, or inventory, actually pledged to secure these loans. The various goods concerned have their respective marketing periods. Ordinarily, the loans are calculated to encompass that period, and the goods actually appear on the market during the period of the loan, thus providing the funds for repayment when the sellers' notes fall due. In numerous instances, these loans are for the purpose of financing retailers' inventories and, while the goods may not be definitely pledged, there are actual goods on the market which are sold during the sixty or ninety days involved. It is true that there are included in this item some loans which are not secured and which have no background of commercial transactions. The total of these, however, is relatively small, and in the absence of more definite information it is necessary to classify all of these assets with the automatically self-liquidating variety.

Item 9, Due from Banks, Checks for Clearing House, Bank Notes in Vaults, etc., is an asset which does not belong with either classification made. It is an interbank item and, from the viewpoint of the banking system as a whole, may be considered as balanced by the corresponding liability, item 12. These do not actually balance in practice because of the fact that checks for the clearing house and items for collection are included in this asset item. Broadly speaking, checks, etc., in the hands of banks for collection are potential debits to demand deposit accounts. Of course, as long as business goes on, there must be a varying amount of such 'floating'

paper. So far as the Index of Inflation is concerned, and for the classification being made, this item may be ignored. It does not represent a relationship between the banks and the public, directly, and therefore has no bearing on the present investigation.

Item 10, Vault Cash, Excluding Bank Notes, consists almost exclusively of the gold reserve of the entire banking system. Ordinarily, fluctuations in the amount of this item are of two general classifications. The first is the long run gradual increase which goes on more or less in parallel with the growth of the banking business as the country increases in population and producing capacity. The second class of fluctuations is that which includes the imports and exports of gold which tend to preserve the international parity of commodity prices in terms of gold and the long run balance of international trade. In recent months, there have been fluctuations in this item due to the dumping of American securities and runs on the dollar by frightened holders of dollar balances. To the extent that such withdrawals of gold have been unwarranted by the balance of trade and the relative price levels, it has been proper for the Federal Reserve Banks to compensate for exports of gold by the purchase of securities in the open market. Since these additional purchases have been a direct result of such exports, the total of investment-type assets has been corrected by the amount involved ($541,000,000.00 as of June 30, 1932). In this connection, it may be well to mention the fact that this estimate is not considered satisfactory by the present writer. Further research must be done along these lines before he will be content with the results. However, since the sum involved is only one-fourteenth of the total excess of investment type assets in 1929, and since the error involved is even smaller, the point is of more academic than practical interest. The gold reserve, in its normal functioning, fulfills a special purpose and is balanced on the liability side of the balance sheet by a portion of demand deposits, including bank notes in the hands of the public. Except for extraordinary instances, as noted above, this asset item is not concerned with the total of investment-type assets.

Item 11, Capital, Surplus and Undivided Profits, is the first of the liability items to be classified. There is no difficulty in placing it properly. It signifies the banks' responsibility for funds or other assets, left in their hands for relatively permanent use.

Item 12, Due to Banks, Including Bank Notes in Vaults of Other Banks, includes only inter-bank liabilities. As has already been mentioned, this item is balanced on the asset side by Due from Banks, etc., and does not enter into the classifications now being made.

Item 14, Demand Deposits, Including Certified Checks and Notes in Hands of Public, includes the various purchasing media in use today. The total of this item is a measure of the monetary or purchasing power requirements accompanying the production and distribution of goods and services. It is probably true that a small part of this item actually is never used for buying or other exchanges. In other words, some minor portion of demand deposits never functions as circulating media of exchange but is more in the nature of a time deposit. It is impossible, however, to determine from the available data what this amount may be.

Item 15, Time Deposits, Including Postal Savings, is a semi-permanent liability for the most part. It is the record of the funds left with banks for investment purposes in order that the owners of the funds may derive an income in the form of interest.

The last of the liability items is 17, Bills Payable, Rediscounts, Bonds Borrowed, etc. This is a liability of a peculiar type, one which arises through the initiative of the banks concerned. It is a means of adjusting a situation which will be explained in detail later. Because of its special characteristics, it will not be classified with either of the two general classifications.

There follows, in tabular form, the complete division into classes according to the discussion just completed. It will be observed that all figures are in per cent of total assets or liabilities to the nearest 0.1 per cent. By this means, the variations in size resulting from seasonal expansion and contraction and from long term growth of the banking system are removed from consideration. They are, of course, irrelevant to this inquiry.

(Attention is invited to the fact that item 5 is the sum of all investment-type assets; and that item 13 is the sum of all savings-type liabilities.)

Table XX
Special Classification and Index of Inflation
All United States Banks

	(5) Investment Type	Automatically Self-Liquidating	(13) Savings Type	Purchasing Media	5/13
	ASSETS		LIABILITIES		RATIO
1914					
June 30	51.8%	34.4%	47.8%	37.2%	108.2%
December 31	52.9	34.1	50.2	34.6	105.4
1915					
March 4	51.9	34.5	50.6	33.8	102.5
May 1	51.0	34.8	49.9	34.4	102.2
June 2	50.7	34.9	50.0	34.8	101.4
September 2	49.6	34.4	47.8	34.9	103.9
November 10	48.5	34.0	44.7	35.4	108.4
December 31	48.8	33.9	44.2	36.0	110.4
1916					
March 7	48.7	33.6	44.1	35.7	110.5
May 1	48.1	33.3	44.0	35.8	109.1
June 30	49.5	34.0	45.7	37.4	108.3
September 12	49.0	33.8	45.0	37.1	109.0
November 17	47.1	33.8	43.0	36.8	109.6
December 27	47.8	34.1	43.8	37.3	109.1
1917					
March 5	45.5	35.3	43.3	37.2	105.0
May 1	45.7	35.5	43.5	37.8	105.0
June 20	46.5	37.0	42.9	39.0	108.5
September 11	45.6	36.2	43.2	38.4	105.6
November 20	48.4	34.5	37.8	40.9	128.0
December 31	44.7	36.1	38.5	38.3	116.1
1918					
March 4	46.1	35.1	39.5	38.4	116.9
May 10	48.5	35.2	38.2	39.6	127.0
June 29	46.5	36.7	39.0	39.8	119.2
August 31	47.8	35.8	38.8	39.0	123.1
November 1	48.7	34.4	35.6	40.0	136.9
December 31	47.5	33.1	36.7	38.1	129.2
1919					
March 4	51.3	32.1	38.2	38.8	134.3
May 12	52.3	31.0	37.5	38.8	139.4
June 30	49.8	32.1	37.9	38.6	131.2
September 12	51.2	31.3	38.1	38.9	134.4
November 17	48.3	31.9	34.1	40.2	141.7
December 31	47.9	32.8	33.9	38.6	141.1

Table XX, Continued

	(5) Investment Type	Automatically Self-Liquidating	(13) Savings Type	Purchasing Media	5/13
	ASSETS		LIABILITIES		RATIO
1920					
February 28	45.5%	37.0%	36.8%	39.2%	123.7%
May 4	44.3	39.2	38.3	38.8	115.8
June 30	43.3	39.6	38.6	38.9	112.1
September 8	43.4	40.2	39.4	38.0	110.0
November 15	42.0	39.9	38.7	36.6	108.4
December 29	43.2	40.5	39.4	36.6	109.7
1921					
February 21	44.2	40.5	41.7	36.7	106.0
April 28	45.6	40.1	42.5	37.2	107.5
June 30	45.4	39.1	42.0	37.5	108.0
September 6	46.0	40.3	43.7	37.6	105.1
December 31	47.0	37.8	43.1	37.6	109.0
1922					
March 10	47.9	36.9	44.8	37.8	108.0
May 5	48.8	35.5	44.2	37.5	110.5
June 30	49.5	34.4	44.6	37.1	110.9
September 15	49.4	34.0	44.3	37.2	111.5
December 29	49.7	32.8	42.9	37.0	116.0
1923					
April 3	49.8	33.8	44.3	36.5	111.1
June 30	50.4	34.5	45.9	36.8	109.9
September 14	49.5	34.9	46.4	36.2	106.8
December 31	49.6	33.1	45.3	35.2	109.6
1924					
March 31	50.2	33.9	47.0	35.8	106.9
June 30	51.2	32.5	47.1	35.3	108.7
October 10	51.6	31.7	46.7	35.1	110.5
December 31	50.8	30.4	45.0	34.5	113.0
1925					
April 6	52.6	31.3	47.6	35.0	110.5
June 30	52.7	30.3	47.3	34.5	111.3
September 28	53.3	30.9	47.4	35.0	112.5
December 31	52.4	29.5	45.3	34.2	115.6
1926					
April 12	53.4	30.6	48.1	34.5	111.0
June 30	53.7	30.1	48.1	34.3	111.8
December 31	53.4	29.6	47.2	33.9	113.0
1927					
March 2	55.6	29.8	49.4	34.3	112.7
June 30	55.4	28.5	48.7	33.8	113.8
October 10	55.9	28.5	48.8	32.6	114.8
December 31	57.0	27.3	47.9	33.6	119.0

Table XX, Continued

	(5) Investment Type	Automatically Self-Liquidating	(13) Savings Type	Purchasing Media	5/13
	ASSETS		LIABILITIES		RATIO
1928					
February 28	57.6%	27.7%	49.6%	33.4%	116.0%
June 30	57.7	27.3	49.6	32.7	116.2
October 3	56.2	26.4	48.4	31.8	116.1
December 31	55.6	24.3	45.8	30.9	121.4
1929					
March 27	57.9	23.7	46.9	31.3	123.5
June 30	60.2	24.1	50.0	32.1	120.5
October 4	57.0	25.4	49.5	31.0	115.1
December 31	56.6	25.0	48.9	30.8	115.9
1930					
March 27	59.4	26.2	52.2	30.5	113.8
June 30	57.9	25.3	50.7	30.1	114.0
September 24	59.1	25.0	52.2	30.3	113.1
December 31	57.0	24.8	51.4	29.3	111.0
1931					
March 25	60.1	23.5	52.7	29.0	114.0
June 30	59.7	23.1	52.9	28.9	113.0
September 29	62.0	(see	54.6	(see	113.5
December 31	61.2	notes)	54.1	notes)	113.0
1932					
June 30	60.8		57.4		106.0

Notes: Due to the fact that final revision of the figures from June 30, 1931 on must await the Comptroller's 1933 Annual Report, which includes data for all banks for June 30, 1932, the preliminary estimates for the last three periods have been confined to the data needed for the ratio, or Index of Inflation.

Preliminary estimates have been based on the data for National Banks and Member Banks of the Federal Reserve System.

3. An Index of Inflation

From the foregoing remarks and the table given above, the next step is apparent. The semi-permanent liabilities of the banking system are a record of the funds placed with the banks for investment purposes. They justify the acquirement of long-term or investment-type assets. On the other hand, the liabilities classed as purchasing media are secondary and arise from the fact that the banks have originated deposit currency and bank notes. Purchasing media are not a *source* of bank funds, viewing the system as a whole, but are themselves derived from and originated by the banks. The latter contention may not be as clear as the former, that is, that

semi-permanent liabilities justify investment-type assets. Therefore, the relation between investment-type assets and the liabilities which justify them will be dealt with in detail.

In the last column of the table above will be found the ratio of the total investment-type assets to the total savings-type liabilities. This ratio is stated in the form of an index number calculated to the nearest decimal. A value of 100 for the index number would indicate parity between the two items.

In order that the tabulated ratio may be presented in a better form for comparative purposes, a chart has been prepared which shows: 1, the index of inflation; 2, the Axe-Houghton-Annalist index of business; 3, the Axe-Houghton-Annalist adjusted index of industrial stock prices; 4, the New York Federal Reserve Bank Index of the General Price Level. (Since this slightly different form of the Index will hardly be of interest to the general reader, it has been omitted here but will be found in the folio of tables and charts which is to be made available to the public later. See page 103.)

4. Related Ratios

Mention has already been made of the fact that comparisons among asset items alone, or among liability items alone, cannot offer evidence which is any more than presumptive at best. However, it is interesting to observe the change which has taken place during the past few years in the item, Loans on Securities, regarded as a proportion of total assets. Perusal of the figures given on page 103 reveals the fact that the ratio has grown from 13.3 per cent in 1914 to nearly 20.0 per cent in 1929. This is a rather striking change. It suggests that the banks have been expanding this item unduly, but there is nothing in these particular figures to prove anything. Obviously, there is no definite criterion to be found in them. While they may, in general, support the conclusions derived from the index of inflation, they are not an index in and of themselves.

One of the very interesting examples of what may be called circumstantial evidence of inflation is found in the liability item, 17, Bills Payable, Rediscounts, and Bonds Borrowed. It will be observed that this item varies from a low of less than 1.0 per cent (of total liabilities) in 1915 to a maximum of 6.8 per cent in 1920, and from a low of 1.1 per cent in 1924 to

a high of 4.3 per cent in 1929. The explanation of these marked changes is quite simple, and since it has already been dealt with in Chapter IV further discussion is unnecessary at this point,

5. Effects on Banking Practice

Paradoxical as it may at first thought appear, the Index of Inflation is not a criterion which is likely to be applied by the individual banker to his operations with the object of preventing inflation by the concerted efforts of thousands of banks. It is true that if *all* banks refused to originate inflationary purchasing power, there could be no inflation. But it is equally true that no such desirable result will ever be obtained by the independent acts of individual banks for the simple reason that it is at times profitable for some banks to lead an inflationary wave.

Moreover, it may be stated definitely that, as long as periodic inflation is permitted to continue, it will be safest and most profitable for the individual bank to lead the inflationary progression throughout. In other words, the individual banker must inflate and deflate in advance of other banks or be caught with adverse clearing-house balances and non-liquid assets when the period of liquidation arrives.

When an inflationary bubble bursts, as they all do eventually, purchasing power is rapidly withdrawn from circulation by those banks which deflate most rapidly. This is accomplished by the sale of investment-type assets and is usually in part result and in part cause of the collapse of the speculative boom then in progress. Now it is obvious that those institutions which liquidate most completely and successfully weather the storm most satisfactorily, while at the other end of the scale those institutions which do not have a sufficiently large proportion of salable assets, or which do not act quickly enough, find themselves in real trouble. Faced with adverse clearing-house balances as the excess purchasing power which has been in their hands flows back to other banks and is withdrawn from circulation, these unfortunate institutions discover that their assets cannot be liquidated (sold) except at a loss, so insolvency results.

Not all bank failures can be attributed to the aftermath of an inflationary period. Among banks, as with other businesses, there are many which are incompetent and fully deserve the fate which overtakes them. However, it may be stated as a fact that a very large proportion of the

failures is due to the sequence of events described. The writer has seen statistics from many hundreds of failed banks and therefore knows that this point has been subjected to statistical proof insofar as the strongest of circumstantial evidence can be said to establish the fact.

6. Other Forms of the Index

In this appendix there has been dealt with, thus far, only one form of the Index of Inflation. It is obvious that a, difference between the total of investment-type assets and savings-type liabilities may be shown in any of several forms. Furthermore, it is also true that only those assets and liabilities in which most of the changes occur could be used in lieu of using all of each (in the investment and savings classifications respectively). In order to make clear the principal means of showing the vital relationships, together with the reasons governing the choice of those used, each of the possible methods is discussed under separate headings below. A. Using all the data in each case: 1. By taking the ratio of investment-type assets to savings-type liabilities at successive periods, the results shown in Table XX are obtained. It seems quite possible that this form would be the best for use when there have not been very abnormal price movements. During a period like the past fifteen years, this form probably does not present the actual situation so clearly from a comparative standpoint. For example, the Ratio shown in Table XX does not rise so high in 1929 as it was in late 1919. In spite of that fact, there is every reason to believe that the more recent of the two periods was the more serious, insofar as unsoundness of the underlying situation was concerned. It seems probable that the very high level of prices in 1919 as compared with 1929 should be taken into consideration. A large portion of the excess in circulation during the earlier period never became frozen, so to speak, in capital goods because it was needed for current use. In particular, rents were high, not just because there was a period of marked inflation, but because there had not been the normal new construction of houses and new apartments during the war years. Other examples could be given to show that the suggested explanation is related to the facts. While this form of the Index is satisfactory in that it eliminates allowances for long-term growth in some cases, it is perhaps not the best form to portray to the layman the course of events during recent years.

2. By taking the difference between investment-type assets and savings-type liabilities at successive periods, another form of the Index is obtained. This form has not been shown graphically. If at some future time a more comprehensive analysis of the data is made especially for those interested in the detailed statistical aspects of the problem, this form will certainly be shown. Those who so desire can easily construct it by plotting the results of the necessary simple subtraction involved.

B. Using the more significant data in each case: It has been found that practically all the significant changes in the asset and liability items concerned have occurred in certain of the items. In the case of the assets, these have been: the outright investments, loans on real estate, and loans on securities. In the case of the liabilities, the items are: capital, surplus, and undivided profits, and time deposits. Furthermore, by using these items alone, both cash in vault and inter-bank items are left out of consideration insofar as the Index is concerned. For several reasons this is desirable. It is impossible to deal with these reasons adequately in a small space. This, too, will have to be left for a more detailed analysis which it is hoped to publish at some later date. As before, the relation between the total of investment-type assets and savings-type liabilities may be shown in two forms.

1. By taking the ratio of the especially significant portion of investment-type assets to savings-type liabilities at successive periods: This has not been included in the present volume. The plotted curve parallels the Index of Inflation shown in Chart XI, for the most part. As in the case of that form of the Index, it is not especially useful for a book of this type because it fails to allow for the higher level of prices during and after the war (that is, for the fact that the level of prices would have been higher than usual for current payments regardless of the inflation of that period).

2. By taking the difference between investment-type assets and savings-type liabilities at successive periods there is obtained that which has been called the 'Partial Absolute Data' form of the Index. This does not reflect the element of long-term growth in the banking system to the same extent that it is found in the form mentioned in A2, above. For the purposes of this book, the Partial Absolute Data form probably conveys the most accurate impression of the situation. Therefore, it is this form of the Index which will be found in Table I and Chart XV, both in Chapter IV.

C. Still another form of the Index may be obtained by taking the ratio of Purchasing Media to Automatically Self-Liquidating, as shown in the foregoing table.

At the height of the 1929 inflation, this ratio was approximately 133.0, compared to a high of 126.0 in 1919. There are reasons for believing that this ratio may prove more useful in the long run. However, a final decision on that point must await further research. The writer hopes to present this information at a later date in a volume primarily for the student and research worker in this field. The research already completed has taken a great deal of the past five years for the statistical work alone, and it is apparent that several lifetimes might be devoted to this task. Naturally, the author will be more than glad to make all completed data available to others just as quickly as portions of the work can be brought up to date. In the meantime, there are numerous avenues open for further investigation. Correspondence from those desiring to work in this field is invited. Letters should be addressed: E. C. Harwood, Assistant Professor, Massachusetts Institute of Technology, Cambridge, Mass.

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