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THE STABILIZATION OF BUSINESS



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The Stabilization of Business

BY

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WITH AN INTRODUCTION BY HERBERT HOOVER

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INTRODUCTION

We are constantly reminded by some of the economists and business men that the fluctuation of the business cycle is inevitable; that there is an ebb and flow in the demand for commodities and services that cannot from the nature of things be regulated. I have great doubts whether there is a real foundation for this view. Thirty years ago our business community considered that a cyclical financial panic was inevitable. We know now that many of our industries are themselves finding methods for insuring more continuous operation of their plants during these ebbs and flows of demand.

An analysis of the business cycle quickly brings one to the separation of our production of consumable goods from the construction of our plant and equipment—that is, our houses, our public utilities, our public improvements, our public works. The ebb and flow of demand for consumable goods probably in the main may be uncontrollable. There is more hope that we could direct certain branches of our construction and equipment, such as public works, the greater utilities, in such a fashion that we could provide the finances and then delay construction until periods of depression, and thereby shift our

labor from consumable goods to plant and equipment in these periods. Such a course would clip the top from booms and the depression from slumps. While this is and can be applied to some large enterprises its best possible field of application is in public works, and already some states are seeking its application.

The desire for greater stability is strong and persistent and grows in force after periods of economic difficulty. Following the great depressions of the early nineties we were afflicted with a flood of combinations and consolidations by the combining of capital. This was the natural result of the previous period of widespread bankruptcy and therefore a groping for something that would serve as a basis of stability. The law very promptly stepped in to prevent the domination threatened by the combination of ownership with its elimination of competition and its strangling of equality of opportunity.

The more recent form of this groping for stability is witnessed in the tremendous growth of economic associations of all kinds, especially during the last decade. This is not alone a question of manufacturing and transportation industries. It has been equally prevalent among farmers, among workers, and among distributors, until there are today of one kind or another probably 25,000 of these voluntary associations having economic objectives. The farmer and labor associations have been practically exempted from the restrictions of the trade restraint laws, and a vast majority of the others are concerned

with many matters that do not result in trade restraint and are definite contributions to public welfare. The functions of genuine chambers of commerce and trade associations have no relation to things originally contemplated as violations of the law, and do make for public welfare.

Viewing the disastrous phenomenon of boom and slump in the light of what the Government can properly do, I believe there has been a great underestimation as to the potential importance to commerce and industry of an adequate service of statistics. I believe that the stability and soundness of business can be greatly enhanced and that vicious speculation can be curtailed by a more adequate information service. We should have more timely, more regular, and more complete information of the current production and consumption and stocks of the great commodities in the United States.

I am confident that there are helpful solutions somewhere, and their working out will be one of the greatest blessings yet given to our economic system —both to the employer and the employee. And there is nothing that would contribute so much to the contentment and the advancement of our people as greater assurance to the individual of a reasonable economic security to remove the fear of total family disaster through the loss of a job to those who wish to work. Such remedies as can be built up by better understanding of these matters and by voluntary action by business itself are wholly to the good. Gov-

ernmental action of equal sanity can be well applied to the governmental services themselves. For the government to attempt to regulate such matters in business is inconceivable, but the government can collect and disseminate information that would be helpful to business.

HERBERT HOOVER.

PREFACE

THOUGHT on business cycles is advancing from the stage of analysis of the causes and characteristics of cycles to the stage of planning the policies of the control of cycles. The literature of analysis and explanation is voluminous, whereas the literature of control and stabilization is in its initial developments. The present volume is an endeavor to make a useful contribution to the problem of control and stabilization. In order to assure intensive and authoritative treatment of particular phases of the problem, specialists in the respective fields have been invited to coöperate in building the book. The good will of the contributors toward the enterprise has resulted in a volume which, it is believed, possesses fundamentally the unity and solidarity of an individual study. Although each contributor is responsible only for the views of his own chapter, nevertheless the community of thought running through the volume must be apparent. Associated effort of this kind should have the effect of bringing the science of economics and the practice of business into a closer understanding and a wider coöperation. The book is intended alike for business men, economists, and students, and is offered as a contribution to the practical technique and the general science of greater control over economic institutions.

LIONEL D. EDIE.

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THE STABILIZATION OF BUSINESS

THE STABILIZATION OF BUSINESS

CHAPTER I

THE PROBLEM OF CONTROLLING BUSINESS CYCLES

Wesley C. Mitchell [1]

INTEREST in the problem of controlling business cycles itself fluctuates with the condition of business. In periods of prosperity few men are concerned to prevent the increasing activity from running to extremes and breeding a crisis. During the crisis everyone is so worried by what to-morrow may bring forth that he takes thought only of emergency measures. It is in periods of depression,

[1] This contribution is a synthesis of Professor Mitchell's numerous articles and addresses. The coöperation of the editor was given in bringing the material together for Professor Mitchell's personal and original touches. Following is a list of the helpful sources: American Economic Association, Supplement, March, 1922; *System,* December, 1921; New York *Evening Post,* October 17, 18, 19, 1921; Address before President's Conference on Agriculture, January, 1922; the author's book on "Business Cycles." Professor Mitchell has introduced also some of the lessons of the investigation on Unemployment and Business Cycles made under his direction by the National Bureau of Economic Research for the Business Cycle Committee of the President's Conference on Unemployment.

when the outlook is drab rather than perilous and when business men have leisure thrust upon them, that cogitation upon the cause and the cure of business cycles becomes a mass phenomenon. Then thousands of men recall their earlier experiences of hard times, speculate with their associates about the character and causes of such seasons, and consider schemes for preventing their recurrence.

No competent student of the subject will assert that the rhythmical alternations of activity and stagnation so characteristic of modern business can be entirely eradicated, so long as we maintain the institutions of the money economy. We do not know what measure of control can ultimately be attained. On the other hand, there is nothing in current theories of business cycles and nothing in the economic history of the past which forbids us to hope that by well-conceived measures we can mitigate in great part the sufferings which we undergo at present in consequence of booms and depressions.

The business cycle, swinging from the period of active business, speculation, expansion, and optimism, down into the trough of low profits, many bankruptcies, part-time operations, and unemployment, through a period of recuperation and back to the peaks of optimism again, has run its course some fifteen times in our country since 1812. No one who studies the record of the past can doubt the reality of this cyclical movement in business. And no one can doubt that crises and depressions have brought

avoidable disaster upon tens of thousands of business enterprises, and offered them unseized opportunities of profit. Why does not every alert business man recognize these facts of experience and take them into account in all his planning?

The main reason is that the crises do not come at perfectly regular intervals and that no two of them are quite alike. For one whole generation before the Civil War it seems as if the cycles had settled upon a definite ten-year interval, marked off by the panics of 1837, 1847, and 1857. But when the Southern states began to pass their acts of secession in the winter of 1860-61, the charm was broken. After the war ended, the first great business crisis came in 1873. Then the succession became rather irregular, 1884, 1890, 1893 (with another period of intense pressure in 1896), 1903-4, 1907, 1911, 1913-14, 1920-21. If only the crises would come with the regularity of presidential elections, every business man in the United States would discount them.

Further, every crisis presents peculiarities all its own. Public attention usually focuses on these peculiarities and makes them into explanations. The great smash of 1873 was called the "Jay Cooke panic," that of 1884 the "railroad panic." We had the "Baring panic" in 1890, the "Cleveland panic" in 1893, the "Bryan panic" in 1896, the "rich man's panic" in 1903, and the "Roosevelt panic" in 1907. It takes independent thinking to work through these popular explanations to the fundamental facts—all

the more because the popular impression is seldom altogether mistaken.

People who treat each crisis as if it were an episode without precedent in past experience make ludicrous and costly errors. When times are hard and seem to be getting harder, they think the whole country is going to the dogs. When times are good and getting better, those who do not remember business history run to the opposite extreme, and talk as if the country had entered a career of steady expansion which nothing could check. They think the phenomenon is one which will continue for all time, rather than for a few months or years at the most. Thus early in 1920 a government official in a press statement said, "I see no prospect of any considerable fall in prices for several years to come." As late as May, 1920, a writer on business conditions in a magazine article said, "There is a good deal of mention in some trade reports as to a sobering down in purchasing by the many, and a diminution in extravagant expenditure. To those in actual touch with the situation, this seems a wish that is father to the thought, for there is little in evidence to warrant any such conclusion."

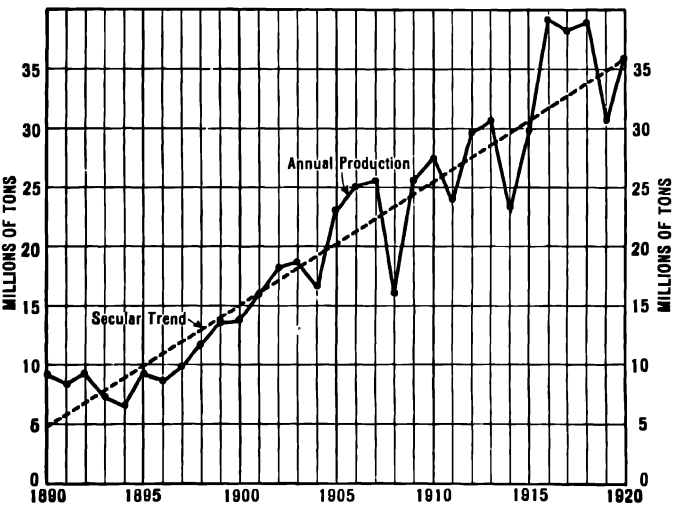
The only sure way to guard against being swept into the current of such emotional errors is to know the facts. That is not easy. When a man begins to study business cycles, he finds the record of experience is no more simple in the history of the country's business as a whole than in the history of

his own business. Statistics supply the most reliable record, but in these statistics many other things are mixed up with business cycles.

These series, indeed, seldom throw the cyclical factor into high relief when taken in the raw state. The most striking feature of a chart showing pig-iron production in the United States is the rapid rate of growth from decade to decade. In a chart of wholesale prices the outstanding features are the effects of the great wars and the long-period swings in the purchasing power of gold. In a chart showing the value of the cotton crop, the effects of the weather are clearer than the effects of prosperity or depression. To trace the course of business cycles clearly it is necessary to set aside the influence of such other factors as can be isolated—particularly the factor of growth and seasonal fluctuations. And after that has been done it is best to trust no single index of business activity, but to combine several of the most significant indexes into a single series.

How the effects of other factors can be excluded is illustrated in a rough and ready fashion by the two charts of wheat and pig-iron production. Here the growth factor is represented by a straight line about which the yearly production oscillates. The 754,000,000 bushels of wheat which were harvested in 1921 would have been impossible under the best weather conditions in 1890, but that crop was somewhat below the "normal" expectation for 1921, just as the 399,000,000 bushel crop of 1890 was

somewhat below normal for that year. So, too, with pig iron, which has a much more rapid factor of growth. The best indication of activity in the iron trade is given by comparing the actual output of the current year, not with the output of any previ-



PIG-IRON PRODUCTION IN THE UNITED STATES

ous year, but with the output indicated for the current year by the "secular trend." These deviations of the actual record of each year from the normal expectation for that year can be computed for various statistical series, reduced to a common denominator by comparison with their respective "standard deviations" and then combined to make a single curve.

DATA FOR DRAWING CHARTS OF PIG-IRON PRODUCTION AND WHEAT CROPS

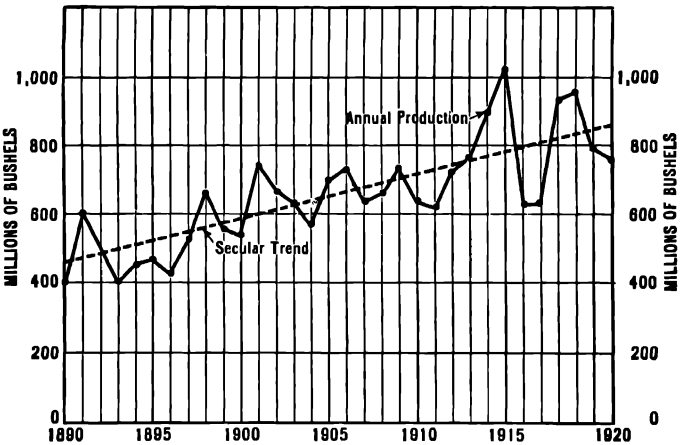
Date	*Pig Iron* (Long tons)	*Wheat* (Bushels)
1890	9.2 millions	399 millions
91	8.3	612
92	9.2	516
93	7.1	396
94	6.7	460
95	9.4	467
96	8.6	428
97	9.7	530
98	11.8	675
99	13.6	547
1900	13.8	522
01	15.9	748
02	17.8	670
03	18.0	638
04	16.5	552
05	23.0	693
06	25.3	735
07	25.8	634
08	15.9	665
09	25.8	739
10	27.3	635
11	23.6	621
12	29.7	730
13	30.7	763
14	23.1	891
15	29.7	1026
16	39.0	636
17	38.2	637
18	38.5	921
19	30.6	934
20	36.4	787
21	...	754

DATA FOR DRAWING LINES OF SECULAR TREND

Pig Iron
Origin in 1890 at 4,700,000 tons
End in 1920 at 36,500,000 tons

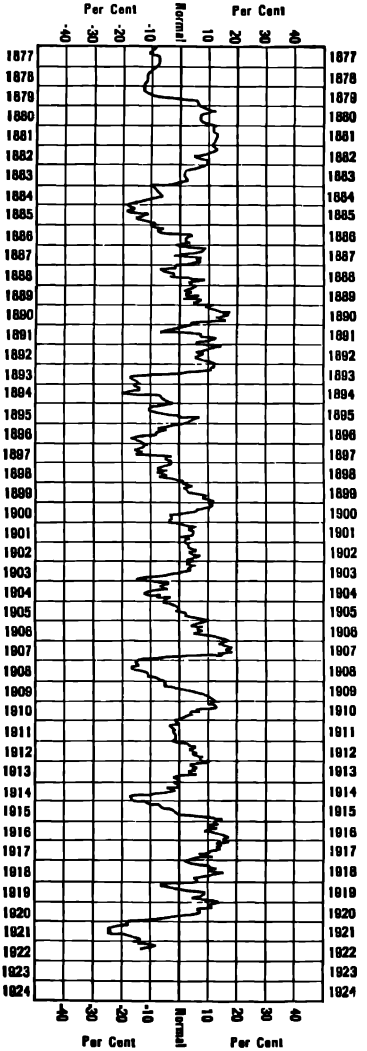
Wheat
Origin in 1890 at 449,000,000 bushels
End in 1921 at 861,000,000 bushels

By an analogous but slightly more elaborate analysis seasonal fluctuations can be excluded. Many branches of business are regularly more active



WHEAT PRODUCTION IN THE UNITED STATES

in certain months than in others. The average magnitude of these swings can be ascertained if one has monthly figures covering a sufficient number of years. Then the normal expectation for any month is shown, not by a steadily rising line of secular trend, but by a wavy line, which may be higher in, say, October of each year than in the following December.



A HALF CENTURY OF AMERICAN BUSINESS
(General Business Activity Compared with Estimated Normal.)

Such methods of analyzing business experience have been developed most fully by Professor Warren M. Persons of the Harvard Committee of Economic Research. By applying these methods over a longer period of time than that covered by the Harvard group, the Statistical Department of the American Telephone and Telegraph Company has constructed the chart showing "A Half Century of American Business." The statistical series used and the relative "weight" allowed to each series in arriving at the final results are as follows:

	Weights
Outside clearings	25
Pig-iron production	20
Railroad traffic	15
Failures	10
Copper production	5
Cotton consumption	10
Coal production	5
Commodity prices	10
Total weights	100

Some of these series do not extend back to the earlier years covered: indeed the line from 1877-84 is based on pig-iron production alone, and it is not until 1903 that all eight series are available.

This chart is a graphic summary of the cyclical oscillations of American business above and below the normal expectation for each year since 1877. It pictures the revival of prosperity that followed the resumption of specie payments and the bumper crops of 1879, the prosperity of the early eighties,

the crisis of 1884, the revival of 1885-86, the boom of 1889-90, the slight share of the United States in the crisis of 1890, the revival that followed the extraordinary harvest in 1891, the great panic of 1893, the prolonged hard times that followed (interrupted by the brief and partial revival of 1895), the return of prosperity that began in 1897, our partial share in the European crisis of 1900, our own "rich man's panic" in 1903, the revival that started in the autumn of 1904 and grew into the boom of 1906, the crisis of 1907, the rapid revival of 1908-9, the reaction in 1910-11, the improvement in 1912, the return of dullness in 1913 merging into the deep depression of 1914, the upward rush to a new peak of prosperity in 1916, the difficulties of maintaining business at this peak during the war, the brief depression that followed the armistice, the new boom that surprised us in 1919, the turn of the tide in 1920, and the deep depression of 1921—a trifle deeper than any of its predecessors shown on the chart.

No one who studies this chart with a realization of the vast amount of practical experience which it sums up year by year can doubt that business is really subject to cyclical oscillations.

The business cycle holds out possibilities of extra profit to the business man as well as possibilities of ruin. But to get these extra profits the business man has to pay a price. That price is real and continuous study of the subject in direct relation to its bearing on his own line of business. He does well

to read articles and books on business cycles. He does well to subscribe to forecasting agencies. But that is not enough. The facts brought out in articles and books, the forecasts made by the agencies, have to be applied to the particular kind of transaction in which the business man is engaged, to his particular facilities for storage and marketing, to his particular credit problems. This application cannot be made successfully by any outsider. The chief executive or some member of his staff must do the hardest part of the work to get good results. And he must stay on the job all the time.

The value of keeping in touch with the curves of price and business activity as an aid to business management may be underestimated if a few trials go wrong. There is no reason to believe that the business forecast is more accurate than the weather forecast. Yet, though storm indications are not always borne out, it pays well in the long run for the market gardener to regard them; a somewhat vague promise of a cold snap without the exact hour, temperature, or duration specified is better than nothing. To heed the indications of trouble or the promises of recovery which can be drawn with reasonable safety from a study of business cycles is business common sense.

There is a special advantage in the business weather map, because good use can be made of it without much attempt at forecasting. In buying and building it is worth while merely to know the past and present conditions. Experience will reduce ma-

terially the percentage of false deductions and, moreover, the fast-growing interest in the business barometers will result in intelligent criticisms which will improve their form and content.

To interpret the business weather map with success it is necessary to know the general course followed by business storms. Knowledge in this field, though still very imperfect, has been accumulating rapidly in recent years, thanks mainly to the collection and analysis of statistical data. Out of such study has risen the view that the business weather tends to pass through a fairly regular sequence of changes. Prosperity becomes intense and breeds a crisis, a crisis runs out into depression, depression after a while begets a renewal of activity, and the revival grows into prosperity. It is this sequence which constitutes the business cycle. The practical knowledge which we need for the guidance of private or public efforts to control the business cycle is knowledge about the processes involved in this sequence.

The processes in question give rise to exceedingly complex interactions, which cannot be unraveled in detail as yet, and which may baffle analysis for years to come. But the chief processes themselves can be traced clearly enough, if one will follow a clue provided by the business system. This clue is the prospects of profits.

Every business enterprise is supposed to aim primarily at making money. When the prospects of

making money improve, business becomes more active. When these prospects grow dark, business becomes dull. Every factor that affects business, from rainfall to politics, exerts its influence by affecting this crucial factor, prospective profits. By following this clue, one can swing around the business cycle without getting lost in its mazes. That is the task essayed in the following pages.

Since business cycles run an unceasing round, each cycle growing out of its predecessor and merging into its successor, our journey of exploration can start with any phase of the cycle we choose. But with whatever phase of the cycle we start, we shall have to plunge into the middle of things, taking for granted the conditions brought about by the preceding phase. Once the start has been made, however, our subsequent course is fixed by the succession of phases through which the cycle passes. By following this succession round the full cycle, we shall be brought back to our starting point, and end the journey by studying the conditions which we took for granted at the beginning.

Having the full liberty of choice, it is well to start with the phase of the cycle through which American business is passing at present—the phase of revival after a depression. The first task will be to see how such a revival gathers momentum and produces prosperity. Then in order will come a discussion of how prosperity produces conditions which lead to crises, how crises end in depressions,

and finally how depressions after a time produce conditions which start a new revival.

A revival of activity, then, starts with this legacy from depression: a level of prices low in comparison with the prices of prosperity, drastic reductions in the cost of doing business, narrow margins of profit, liberal bank reserves, a conservative policy in capitalizing business enterprises and in granting credits, moderate stocks of goods, and cautious buying. For reasons which will appear in the sequel, such conditions are accompanied by an expansion in the physical volume of trade. Though slow at first, this expansion is cumulative. Now it is only a question of time when an increase in the amount of business transacted, which grows more rapid as it proceeds, will turn dullness into activity. Left to itself, this transformation proceeds by slow degrees; but it is often hastened by some propitious event arising from other than domestic business sources, such as exceptionally profitable harvests, heavy purchases of supplies by government, or a marked increase in the export demand for the products of home industry.

Even when a revival of activity is confined at first within a narrow range of industry or within some single section of the country, it soon spreads to other parts of the business field. For the active enterprises must buy more materials, wares, and current supplies from other enterprises, the latter from still others, and so on without assignable limits. Meanwhile, all enterprises which become busier, employ

more labor, use more borrowed money, and make higher profits. There results an increase in family incomes and an expansion of consumers' demands, which likewise spreads out in ever-widening circles. Shopkeepers pass on larger orders for consumers' goods to wholesale merchants, manufacturers, importers, and producers of raw material. All these enterprises require more supplies of various kinds for handling their growing trade, and increase the sums which they pay out to employees, lenders, and proprietors—thus stimulating afresh the demand for producers' and consumers' goods. Soon or late this expansion of orders reaches back to the enterprises from which the impetus to greater activity was first received, and then this whole complicated series of reactions begins afresh at a higher pitch of intensity. All this while, the revival of activity is instilling a feeling of optimism among business men, and this feeling both justifies itself and heightens the forces which engendered it by making everyone readier to buy with freedom.

While the price level is often sagging slowly when a revival begins, the cumulative expansion in the physical volume of trade presently stops the fall and starts a rise. For, when enterprises have in sight as much business as they can handle with their existing facilities of standard efficiency, they stand out for higher prices on additional orders. This policy prevails even in the most keenly competitive trades, because additional orders can be executed

only by breaking in new hands, starting old machinery, buying new equipment, or making some other change which involves increased expense. The expectation of its coming hastens the advance. Buyers are anxious to secure or contract for large supplies while the low level of quotations continues, and the first definite signs of an upward trend of quotations brings out a sudden rush of orders.

Like the increase in the physical volume of business, the rise of prices spreads rapidly, for every advance of quotations puts pressure upon some one to recoup himself by making a compensatory advance in the prices of what he has to sell. The resulting changes in prices are far from even, not only as between different commodities, but also as between different parts of the system of prices. As a rule, retail prices lag behind wholesale, the prices of staple consumers' behind the prices of staple producers' goods, and the prices of finished products behind the prices of their raw materials. Among raw materials, the prices of mineral products reflect the changed business conditions more regularly than do the prices of raw animal, farm, or forest products. Wages rise often more promptly, but always in less degree than wholesale prices; the discount rates rise sometimes more slowly than commodities and sometimes more rapidly; interest rates on long loans always move sluggishly in the early stages of revival, while the prices of stocks—particularly of common stocks—both precede and exceed commodity prices

on the rise. The causes of these differences in the promptness and the energy with which various classes of prices respond to the stimulus of business activity are found partly in differences of organization among the markets for commodities, labor, loans, and securities; partly in the technical circumstances affecting the relative demand for and the supply of these several classes of goods; and partly in the adjusting of selling prices to changes in the aggregate of buying prices which a business enterprise pays, rather than to changes in the prices of the particular goods bought for resale.

In the great majority of enterprises, larger profits result from these divergent price fluctuations, coupled with the greater physical volume of sales. For, while the prices of raw materials and of wares bought for resale usually, and the prices of bank loans often, rise faster than selling prices, the prices of labor lag behind, and the prices which make up overhead costs are mainly stereotyped for a time by old agreements regarding salaries, leases, and bonds.

This increase of profits, combined with the prevalence of business optimism, leads to a marked expansion of investments. Of course, the heavy orders for machines, the large contracts for new construction, etc., which result, swell still further the physical volume of business, and render yet stronger the forces which are driving prices upward.

Indeed, the salient characteristic of this phase of

the business cycle is the cumulative working of the various processes which are converting a revival of trade into intense prosperity. Not only does every increase in the physical volume of trade cause other increases, every convert to optimism make new converts, and every advance of prices furnish an incentive for fresh advances; but the growth of trade also helps to spread optimism and to raise prices, while optimism and rising prices both support each other and stimulate the growth of trade. Finally, as has just been said, the changes going forward in these three factors swell profits and encourage investments, while high profits and heavy investments react by augmenting trade, justifying optimism, and raising prices.

The more vividly this cumulative growth of prosperity is appreciated, the more difficult becomes the problem why prosperity does not continue indefinitely, instead of being but one passing phase of the business cycle.

Of course prosperity confers no immunity against disasters which interfere with the course of business; but over many such rocks the accumulated momentum of good times may run without serious mishap. The great shortage of the American corn crop in 1901 did not stop the "boom" then in progress, though it came soon after a spectacular corner in the stock market; the failure of Mr. Walsh's banks in Chicago, the San Francisco fire, and the great coal strike, did not stop the "boom" of 1905-6,

though they followed hard one on the other. For such misfortunes affecting a few sections of the business community the superabounding prosperity of the other sections is more than a match. On the other hand, some periods of intense prosperity have ended in years of peace, plenty, and good fortune. The waning, like the waxing of prosperity, therefore, must be due, not to the influence of "disturbing causes" from outside, but to processes which run regularly within the world of business itself.

The world of business is a system comprising numberless independent enterprises, bound together by industrial, commercial, and financial ties. For the continuance of prosperity it is indispensable that a certain balance be maintained between the fundamental processes which constitute the activity of the system. The demand for goods of every kind must keep pace with the increasing supply, despite the steadily rising prices; the cost of raw materials must not increase too much in comparison with the selling prices of manufactured goods; mercantile collections must grow with mercantile credits; bank reserves must expand with demand liabilities; the cost of living must not rise much faster than money incomes; banks and investors must continue able to provide the ever-increasing loan funds required by business enterprises; and the like. If there occurs a serious maladjustment in the rate at which any of these factors are growing in relation to the others, some business enterprises will suffer loss of profits.

Then the bonds which unite different enterprises will become channels through which the injury will spread to other enterprises, just as they were recently channels for the spread of prosperity. Unless the original injury is promptly healed, there is grave danger that the cumulation of prosperity will be converted into a cumulation of depression.

It is some such maladjustment among the various factors in the system of business which brings all seasons of expansion to a close and turns prosperity into crisis. The regularity with which this happens suggests that prosperity itself has other effects than those which tend to sustain and intensify business activity. During the early stages of a business revival, these effects pass unnoticed; but, though slow in developing, their later growth must be cumulative at a higher rate than the growth of the prosperity-producing factors. The next task is to investigate the sources and character of these stresses, which accumulate within the system of business until they finally disrupt its equilibrium.

Among these stresses is the gradual increase in the costs of doing business. The decline in overhead costs per unit of output ceases when enterprises have once secured all the business they can handle with their standard equipment, and a slow increase of these costs begins when the expiration of old contracts makes necessary renewals at the high rates of interest, rent, and salaries which prevail in prosperity. Meanwhile operating costs rise at a rela-

tively rapid rate. Equipment which is antiquated and plants which are ill located, or otherwise work at some disadvantage, are brought again into operation. The price of labor rises, not only because standard rates of wages go up, but also because of the prevalence of higher pay for overtime. More serious still is the fact that labor declines in efficiency, because overtime brings weariness, because of the employment of "undesirables," and because crews cannot be driven at top speed when jobs are more numerous than men to fill them. The prices of raw materials continue to rise faster on the average than the selling prices of products. Finally, the numerous small wastes incident to the conduct of business enterprises creep up when managers are hurried by the press of orders demanding prompt delivery.

A second stress is the accumulating tension of the investment and money markets. The supply of funds available at the old rates of interest for the purchase of bonds, for lending on mortgages, and the like, fails to keep pace with the rapidly swelling demand. It becomes difficult to negotiate new issues of securities except on onerous terms, and men of affairs complain of the "scarcity of capital." Nor does the supply of bank loans grow fast enough to keep up with the demand. For the supply is limited by the reserves which bankers hold against the expanding demand liabilities. Full employment and active retail trade cause such a large amount

of money to remain suspended in active circulation that the cash left in the banks increases rather slowly, even when the gold output is rising most rapidly. On the other hand, the demand for bank loans grows not only with the physical volume of trade, but also with the rise of prices, and with the desire of men of affairs to use their own funds for controlling as many business ventures as possible. Moreover, this demand is relatively inelastic, since many borrowers think they can pay high rates of discount for a few months and still make profits on their turnover, and since the corporations which are unwilling to sell long-time bonds at the hard terms which have come to prevail try to raise part of the funds they require by discounting one- or two-year notes.

Tension in the bond and money markets is unfavorable to the continuance of prosperity, not only because high rates of interest reduce the prospective margins of profit, but also because they check the expansion in the volume of trade out of which prosperity developed. Many projected ventures are relinquished or postponed, either because borrowers conclude that the interest would absorb too much of their profits, or because lenders refuse to extend their commitments farther.

The difficulty of financing new projects intensifies the check which one important group of industries has already begun to suffer from an earlier-acting cause. The industries in question are those which

produce industrial equipment—tools, machines, plant—and the materials of which this equipment is made, from lumber and cement to copper and steel.

The demand for industrial equipment is partly a replacement demand and partly a demand for betterments and extensions. The replacement demand for equipment doubtless varies with the physical quantity of demand for products; since, as a rule, the more rapidly machines and rolling stock are run the more rapidly they wear out. The demand for betterments and extensions, on the other hand, varies not with the physical quantity of the products demanded, but with the fluctuations in this quantity.

To illustrate the peculiar changes in demand for industrial equipment which follow from this situation, suppose that the physical quantity of a certain product varied in five successive years as follows:

1st year	*2nd year*	*3rd year*	*4th year*	*5th year*
100,000 tons	95,000 tons	100,000 tons	110,000 tons	115,000 tons

This product is turned out by machines, each of which will produce 100 tons per year. Thus the number of machines in operation each year was.

1st year	*2nd year*	*3rd year*	*4th year*	*5th year*
1,000 machines	950 machines	1,000 machines	1,100 machines	1,150 machines

Each year one-tenth of the machines in operation wear out. The replacemed demand for machines was therefore

1st year	*2nd year*	*3rd year*	*4th year*	*5th year*
100 machines	95 machines	100 machines	110 machines	115 machines

The demand for additional machines was far more variable. Neglecting the first year, for which our illustration does not supply data, it is plain that no additions to equipment were required the second year when 50 of the machines in existence stood idle, and also none the third year. But after all the existing machines had been utilized, new machines had to be bought at the rate of one machine for each 100 tons added to the product. Hence the demand for additions to equipment shown by the number of machines in operation was

1st year	*2nd year*	*3rd year*	*4th year*	*5th year*
no data	none	none	100 machines	50 machines

Adding the replacement demand and the demand for additions to equipment we find the total demand for industrial equipment of this type to be

1st year	*2nd year*	*3rd year*	*4th year*	*5th year*
no data	95 machines	100 machines	210 machines	165 machines

Of course the figures in this example are fanciful. But they illustrate genuine characteristics of the demand for industrial equipment. During depression and early revival the equipment-building trades get little business, except what is provided by the replacement demand. When the demand for products has reached the stage where it promises soon to exceed the capacity of existing facilities, however, the equipment trades experience a sudden and intense "boom." But their business falls off again before prosperity has reached its maximum, provided the *increase* in the physical quantity of products slackens

before it stops. Hence the seeming anomalies pointed out by Professor J. Maurice Clark:

"The demand for equipment may decrease . . . even though the demand for the finished product is still growing. The total demand [for equipment] tends to vary more sharply than the demand for finished products . . . The maximum and minimum points in the demand [for equipment] tend to precede the maximum and minimum points in the demand for the finished products, the effect being that the change may appear to precede its own cause." [1]

The imposing fabric of prosperity is built with a liberal factor of safety; but the higher grows the structure, the more severe become these internal stresses. The only effective means of preventing disaster while continuing to build is to raise selling prices time after time high enough to offset the encroachments of costs upon profits, to cancel the advancing rates of interest, and to keep investors willing to contract for fresh industrial supplies.

But it is impossible to keep selling prices rising for an indefinite time. In default of other checks, the inadequacy of cash reserves would ultimately compel the banks to refuse a further expansion of loans upon any terms. But before this stage has been reached, the rise of prices may be stopped by the consequences of its own inevitable inequalities.

[1] See Professor Clark's article "Business Acceleration and the Law of Demand," *Journal of Political Economy*, March, 1917. See also George H. Hull, "Industrial Depressions," 1911.

These inequalities become more glaring the higher the general level is forced; after a time they threaten serious reduction of profits to certain business enterprises, and the troubles of these victims dissolve the confidence in the security of credits with which the whole towering structure of prosperity has been cemented.

What, then, are the lines of business in which selling prices cannot be raised sufficiently to prevent a reduction of profits? There are certain lines in which selling prices are stereotyped by law, by public commissions, by contracts of long term, by custom, or by business policy, and in which no advance, or but meager advances can be made. There are other lines in which prices are always subject to the incalculable chances of the harvests, and in which the market values of all accumulated stocks of materials and finished goods waver with the crop reports. There are always some lines in which the recent construction of new equipment has increased the capacity for production faster than the demand for the wares has expanded under the repressing influence of the high prices which must be charged to prevent a reduction of profits. The unwillingness of investors to let fresh contracts threatens loss, not only to contracting firms of all sorts, but also to all enterprises from whom they buy materials and supplies. The high rates of interest not only check the current demand for wares of various kinds, but also clog the effort to maintain prices by keeping large

stocks of goods off the market until they can be sold to better advantage. Finally, the very success of the other enterprises in raising selling prices fast enough to defend their profits aggravates the difficulties of the men who are in trouble. For to the latter, every further rise of prices for products which they buy means a further strain on their already stretched resources.

As prosperity approaches its height, then, a sharp contrast develops between the business prospects of different enterprises. Many, probably the majority, are making more money than at any previous stage of the business cycle. But an important minority, at least, face the prospect of declining profits. The more intense prosperity becomes, the larger grows this threatened group. It is only a question of time when these conditions, bred by prosperity, will force some radical readjustment.

Now such a decline of profits threatens worse consequences than the failure to realize expected dividends. For it arouses doubt concerning the security of outstanding credits. Business credit is based primarily upon the capitalized value of present and prospective profits, and the volume of credits outstanding at the zenith of prosperity is adjusted to the great expectations which prevail when the volume of trade is enormous, when prices are high, and when men of affairs are optimistic. The rise of interest rates has already narrowed the margins of security behind credits by reducing the capitalized

value of given profits. When profits themselves begin to waver, the case becomes worse. Cautious creditors fear lest the shrinkage in the market rating of the business enterprises which owe them money will leave no adequate security for repayment. Hence they begin to refuse renewals of old loans to the enterprises which cannot stave off a decline of profits, and to press for a settlement of outstanding accounts. Thus prosperity ultimately brings on conditions which start a liquidation of the huge credits which it has piled up. And in the course of this liquidation prosperity merges into crisis.

Once begun, the process of liquidation extends very rapidly, partly because most enterprises which are called upon to settle their maturing obligations in turn put similar pressure upon their own debtors, and partly because, despite all efforts to keep secret what is going forward, news presently leaks out and other creditors take alarm. While this financial readjustment is under way, the problem of making profits on current transactions is subordinated to the more vital problem of maintaining solvency. Business managers concentrate their energies upon providing for their outstanding liabilities and upon nursing their financial resources, instead of upon pushing their sales. In consequence, the volume of new orders falls off rapidly. That is, the factors which were already dimming the prospects of profits in certain lines of business are reinforced and extended. Even when the overwhelming majority of

enterprises meet the demand for payment with success, the tenor of business developments, therefore, undergoes a change. Expansion gives place to contraction, though without a violent wrench. Discount rates rise higher than usual, securities and commodities fall in price, and as old orders are completed working forces are reduced; but there is no epidemic of bankruptcies, no runs upon banks, and no spasmodic interruption of the ordinary business processes.

At the opposite extreme from crises of this mild order stand the crises which degenerate into panics. When the process of liquidation reaches a weak link in the chain of interlocking credits and the bankruptcy of some conspicuous enterprise spreads unreasoning alarm among the business public, then the banks are suddenly forced to meet a double strain —a sharp increase in the demand for loans, and a sharp increase in the demand for repayment of deposits. If the banks prove able to honor both demands without flinching, the alarm quickly subsides. But if, as in 1873, 1893, and 1907, many solvent business men are refused accommodation at any price, and if depositors are refused payment in full, the alarm turns into panic. A restriction of payments by banks gives rise to a premium upon currency, to hoarding of cash, and to the use of various substitutes for money. A refusal by the banks to expand their loans, still more a policy of contraction, sends interest rates up to three or four times their

usual figures, and causes forced suspensions and bankruptcies. Collections fall into arrears, domestic exchange rates are dislocated, workmen are discharged because employers cannot get money for payrolls or fear lest they cannot collect pay for goods when delivered, stocks fall to extremely low levels, even the best bonds decline somewhat in price, commodity markets are disorganized by sacrifice sales, and the volume of business is violently contracted.

The period of severe financial pressure is often followed by the reopening of numerous enterprises which had been shut for a time. But this prompt revival of activity is partial and short-lived. It is based chiefly upon the finishing of orders received but not completely executed in the preceding period of prosperity, or upon the effort to work up and market large stocks of materials already on hand or contracted for. It comes to an end as this work is gradually finished, because new orders are not forthcoming in sufficient volume to keep the mills and factories busy.

There follows a period during which depression spreads over the whole field of business and grows more severe. Consumers' demand declines in consequence of wholesale discharges of wage-earners, the gradual exhaustion of past savings, and the reduction of other classes of family incomes. With consumers' demand falls the business demand for raw materials, current supplies, and equipment used in making consumers' goods. Still more severe is

the shrinkage of investors' demand for construction work of all kinds, since few individuals or enterprises care to sink money in new business ventures, so long as trade remains depressed and the price level is declining. The contraction in the physical volume of business which results from these several shrinkages in demand is cumulative, since every reduction of employment causes a reduction of consumers' demand, and every decline in consumers' demand depresses current business demand and discourages investment, thereby causing further discharges of employees and reducing consumers' demand once more.

With the contraction in the physical volume of trade goes a fall of prices. For, when current orders are insufficient to employ the existing equipment for production, competition for what business is to be had becomes keener. This decline spreads through the regular commercial channels which connect one enterprise with another, and is cumulative, since every reduction in price facilitates, if it does not force, reductions in other prices, and the latter reductions react in their turn to cause fresh reductions at the starting point.

As the rise of prices which accompanied revival, so the fall which accompanies depression is characterized by marked differences in degree. Wholesale prices usually fall faster than retail, the prices of producers' goods faster than those of consumers' goods, and the prices of raw materials faster than

those of manufactured goods. The prices of raw mineral products follow a more regular course than those of raw forest, farm, or animal products. As compared with the general index numbers of commodity prices at wholesale, index numbers of wages and interest on long-time loans decline in less degree, while index numbers of discount rates and of stocks decline in greater degree. The only important group of prices to rise in the face of depression is that of high-grade bonds.

Of course the contraction in the physical volume of trade and the fall of prices reduce the margin of present and prospective profits, spread discouragement among business men, and check enterprise. But they also set in motion certain processes of readjustment by which depression is gradually overcome.

The operating costs of doing business are reduced by the rapid fall in the prices of raw materials and of bank loans, by the marked increase in the efficiency of labor which comes when employment is scarce and men are anxious to hold their jobs, and by closer economy on the part of the managers. Overhead costs also are reduced by reorganizing enterprises which have actually become or which threaten to become insolvent, by the sale of other enterprises at low figures, by reduction of rentals and refunding of loans, by charging off bad debts and writing down depreciated properties, and by admitting that a recapitalization of business enter-

prises—corresponding to the lower prices of stocks—has been effected on the basis of lower profits.

While these reductions in costs are still being made, the demand for goods ceases to shrink and then begins slowly to expand—a change which usually comes after one or two years of depression. Accumulated stocks left over from prosperity are gradually exhausted, and current consumption requires current production. Clothing, furniture, machinery, and other moderately durable articles which have been used as long as possible are finally discarded and replaced. Population continues to increase at a fairly uniform rate: the new mouths must be fed and new backs clothed. New tastes appear among consumers and new methods among producers, giving rise to demand for novel products. Most important of all, the investment demand for industrial equipment revives; for though saving slackens it does not cease, with the cessation of foreclosure sales and corporate reorganizations the opportunities to buy into old enterprises at bargain prices become fewer, capitalists become less timid as the crisis recedes into the past, the low rates of interest on long-term bonds encourage borrowing, the accumulated technical improvements of several years may be utilized, and contracts can be let on most favorable conditions as to cost and prompt execution.

Once these various forces have set the physical volume of trade to expanding again, the increase

proves cumulative, though for a time the pace of growth is kept slow by the continued sagging of prices. But while the latter maintains the pressure upon business men and prevents the increased volume of orders from producing a rapid rise of profits, still business prospects become gradually brighter. Old debts have been paid, accumulated stocks of commodities have been absorbed, weak enterprises have been reorganized, the banks are strong—all the clouds upon the financial horizon have disappeared. Everything is ready for a revival of activity, which will begin whenever some fortunate circumstance gives a sudden fillip to demand, or, in the absence of such an event, when the slow growth of the volume of business has filled order books and paved the way for a new rise of prices.

Such is the stage of the business cycle with which the analysis began, and, having accounted for its own beginning, the analysis ends.

Business cycles have run a tolerably regular course in the United States for a century, and in older nations for a longer period. But it is not inevitable that what has happened will repeat itself indefinitely. Indeed, this very history when examined closely offers strong encouragement to efforts at changing the course of business developments. For among the changes that have taken place in the character of business cycles are certain changes due to the purposeful intervention of men. Men have learned to exercise a considerable measure

of control over at least one phase of the business cycle.

In the middle of the last century the English found that if the business public is assured in times of pressure that all solvent borrowers can get bank accommodation by paying a high discount rate there will be no panic fears, no runs on the banks, and no epidemics of needless bankruptcies. The adoption of this method of "crisis financiering" produced a marked change in the character of English business cycles: the crises became less spectacular, the liquidations became more circumspect but longer. At the same time, the difference between English and American cycles became more marked. We continued to have violent panics, as in 1873, 1893, and 1907. Bankers and economists knew the reason and urged the remedy—such a centralization of banking resources as would enable American bankers to give their customers the same assurance that the English business men received. It took a generation to effect the necessary changes in our federal banking law, but President Wilson finally succeeded in getting Congress to pass the Federal Reserve Act in 1914. And six years later our new machinery was put to the test and found adequate.

To repeat, we have learned how to prevent crises from degenerating into panics and from that success we may derive substantial encouragement to attack the next problems: how to lessen the excesses of "booms" and the sufferings of depressions.

In dealing with these problems we have seldom made the proper approach. After the usual human fashion we have tried to counteract the effects from which we suffer, rather than to control the causes from which they flow. In every period of severe depression we have hurriedly devised emergency measures to prevent people from starving. Of course that is an effort in which every sensible man is glad to join, once the emergency grows urgent. But obviously it would be better to prevent these emergencies from arising—if that is possible. Our chief failing has been that we have not devoted sufficient constructive intelligence to finding out whether prevention is possible.

Happily, this remark is to-day a commonplace. The most hopeful sign in our dealings with the economic difficulties of 1920-21 is that many men in public and in private stations have taken the constructive attitude, considering the future as well as the present, thinking about prevention as well as cure. That temper was a notable feature of the President's Conference on Unemployment, which under Secretary Hoover's leadership first arranged to coördinate the emergency measures for relieving distress, and then provided machinery for framing a preventive program.

In most discussions of preventive measures it is notable that emphasis is laid upon the prosperous phase of the cycle as the phase which requires control. It is becoming a common opinion that the

time for effective action is the time when industrial activity is approaching the elastic limit set by full use of existing plant and when further expansion will be primarily a speculative boom. In addition to angry recrimination, there is much dispassionate analysis of the mistakes committed by the business community in 1919, analysis which seeks to find how such mistakes may be avoided in future.

The central issue in most discussions of what we did amiss in 1919 is the time at which the discount rates of federal reserve banks should have been raised. Most competent judges seem to agree with the "personal opinion" expressed on this point by Governor Benjamin Strong in his statement of August, 1921, to the Joint Commission of Agricultural Inquiry. "I believe," said Governor Strong, "if it had been possible, it would have been desirable for the Federal Reserve System to have advanced its rates at some point in the period between January and March, 1919" [1]—instead of waiting until November.

Since our concern is with the future we need not stop to discuss Governor Strong's limiting clause—"if it had been possible." Perhaps the Treasury's plans for floating the enormous Victory Loan in the spring really did make it impossible, or at least undesirable, to raise the federal reserve rates until that undertaking was accomplished. However that

[1] Hearing before the Joint Commission of Agricultural Inquiry, Sixty-Seventh Congress, First Session, Part 13, p. 763.

may be, we are justified in hoping that in the future such exigencies will seldom arise to prevent the Federal Reserve Board from adopting the policy which seems wise in the economic interest of the public. What most concerns us is that the Governor of the largest Federal Reserve Bank and many other experts believe after mature consideration that it would have been desirable to raise rates before the boom began. His reason for this conclusion is that an advance of rates would have moderated the expansion of business and thereby diminished the severity of the crisis of 1920.[1]

If Governor Strong and the men who share his opinion are right about the policy that was desirable in 1919, as I think they are, may we not generalize and say it is desirable to raise discount rates in future periods of expansion, whenever signs appear that production is nearing its limit and that further expansion will consist mainly in bidding up the prices of securities, of industrial equipment, and of the goods in process of production and distribution?

Three objections have been made to this suggestion that the excesses of booms can be tempered by advancing discount rates at an earlier stage than has been customary in the past.

First, it is said that the measure would be ineffective. Bank discount is a minor item in most business undertakings, an item small in comparison both with other costs and with the profit margins

[1] *Ibid.*, p. 772.

anticipated in periods of prosperity. In this respect, we are told, American business differs notably from English business in pre-war days, when an enormous volume of international trading was done in London on margins so narrow that a change of a quarter of one per cent in the market rate of interest made a marked difference in the prospects of profits.

There is force in this contention, but not, I think, enough force to contervail Governor Strong's opinion that an advance of discount rates would moderate the expansion of business. And moderation is what is wanted to prevent booms from producing those credit entanglements which make inevitable a long period of liquidation. Granted that most business plans would not be affected by an advance of even one or two per cent of the discount rate, there probably remains a considerable volume that would be affected directly, and a larger volume that would be affected indirectly by a signal from the banks to observe caution. To control these marginal transactions would help to relax the stresses that are accumulating within the business system.

A second objection is that the American public has been accustomed to accept reserve ratios as the best index of banking conditions and the proper guide to discount policy. In view of that fact it may be chimerical to propose schemes that set up a novel basis of control. The wise line of advance "is not that of finding a substitute for the reserve ratio as a guide to credit policy, but rather that of finding

how to make our reserve ratio a more sensitive and immediate indicator of changing conditions than it now is." Mr. A. C. Miller of the Federal Reserve Board has recently presented this view with his cogent lucidity in the *American Economic Review*.[1] And in accordance with this view he has suggested changes in the methods of Federal Reserve banking designed to make the American system work in much the same way as the English banking system worked for forty years before the war.

One may, I think, go far with Mr. Miller and yet stop short of the conclusion that the reserve ratio should continue indefinitely to be the guide to credit policy. Efforts to make "our reserve ratio a more sensitive and immediate indicator of changing conditions than it now is" are certainly in the line of progress. But I hope that progress will not be limited to attaining such measure of success as the Bank of England achieved for forty years before the war. For with all this success England suffered grievously from business cycles. We should aim at gaining a far more effective control over the wastes of prosperity and the sufferings of depression than the Bank of England has ever exercised. And while we may agree with Mr. Miller that our business public is unprepared for a discount policy that might raise the rates while reserve ratios were still high, yet we may not treat that attitude as an insuperable

[1] "Federal Reserve Policy," *American Economic Review*, June, 1921.

obstacle. As an official, Mr. Miller confines himself to that which is immediately realizable; as an economist, he might join us in considering plans which involve campaigns of education.

The final objection is that we have no definite means of knowing the precise point in the prosperous phase of the business cycle at which it is desirable to check expansion. But that objection has been met by the progress of statistical research and the ingenuity of Professor O. M. W. Sprague. Professor Sprague has proposed to use index numbers of physical production such as have been made recently by Day, King, Snyder, and Stewart as a basis for discount policy. These series show that the increase in volume of business after a depression is for some time produced mainly by a rapid increase in the output of serviceable goods. During that phase of the cycle expansion is economically desirable. But whenever the existing industrial equipment is booked to capacity and the industrial army is fully employed, then future growth in the supply of serviceable goods slows down to the rate at which new equipment and new hands can be provided and improved technical methods devised. After this point has been reached in the cycle a further rise of prices serves not to increase the current supply of serviceable goods, but to create confusion in the markets, to stimulate disserviceable speculation, and to produce the credit entanglements which cause so much anxiety during the crisis and prolong the period of

liquidation. Our aim, accordingly, should be to check the rise of prices when the index numbers of physical output indicate that the limit of existing capacity is being approached. At that point it would be desirable to raise discount rates—even though reserve ratios might still be high.

A later proposal and one which Professor Sprague now regards as more important and easier to apply, is to change the prevailing practice with reference to the "current ratio." In nearly every bank it is a rule of thumb that applicants for credit should have current assets equal to at least twice their current liabilities. Professor Sprague points out that the uniform application of this two-to-one rule through all the phases of the business cycle fails to provide the safeguards which bankers seek and which business stability requires. For the amount of the current assets of a business depends largely upon the value of its inventory, and thus upon the prices set upon the goods in stock. These prices are likely to reach their maximum at the height of the boom. A current ratio of two to one based upon the prices prevailing shortly before a crisis may give a far too favorable impression of an enterprise's position. On the contrary to require a two to one ratio may obstruct recovery when inventories are based upon the exceedingly low prices of depression. Certainly the same nominal ratios at these two phases of the cycle indicate marked differences in financial strength. Professor Sprague proposes that

bankers recognize these patent facts and make it their practice to require a higher current ratio in times of boom than in times of depression.

We cannot pass final judgment upon these suggestions until they have been developed in full by their author. But at best we cannot expect that any plans relating simply to banking practice will give us as large a measure of control over the business cycle as we desire and can attain. And this remark carries us forward to the consideration of certain other plans of control which merit attention.

The most promising among these other plans are so familiar that I need hardly more than name them. First comes the long-range planning of public works, with intent to get a larger part of such undertakings executed in periods of depression. In England the possibilities of this plan have been investigated by Professor A. L. Bowley and its adoption has been urged by Mr. and Mrs. Webb. In America its chief champion is Mr. Otto T. Mallery. In 1917 Mr. Mallery persuaded the legislature of Pennsylvania to set up the machinery necessary for such a program. California copied the Pennsylvania legislation in 1921, and while a bill providing for a similar planning of federal public works was recently rejected by the Senate the project is far from dead. For this plan it is urged that the saving in the cost of public works if contracts were let in periods of depression would be ample compensation for any inconvenience caused by postponing their comple-

tion for a year or two; that the reduction of competition for men and materials during periods of prosperity would lessen the strain of overactivity, and the increase of public contracts in times of depression would diminish the losses of both labor and capital. Like most other reforms, this plan cannot be put into effect without an intelligent appreciation of what is now amiss on the part of a large number of men. It, too, requires a campaign of public education. And no one can tell in advance just what practical importance it may assume. But clearly the average annual volume of construction work now undertaken by various public bodies runs high in the hundreds of millions, and a considerable fraction of this imposing total can be allocated on the basis of the business cycle without detriment to social welfare. Further, it is quite possible that in addition to construction work public purchases of many standard supplies might advantageously be planned on this basis.

The extension of such long-range planning from public to private enterprises is an obvious suggestion. Before the war the French Ministry of Transportation seemed to be moving in this direction, with reference both to new construction and purchase of rolling stock. As long ago as 1908 Mr. Carl Snyder was arguing that American railways could profit by planning their expenditures, as they have long been planning their financing, with reference to the business cycle. In practice, most Amer-

ican railways still do precisely the opposite; they build and buy most freely in times of business activity when costs are high. For this policy there is at present a compelling reason. Few railway systems have the financial leeway necessary to allocate their outlays in the most advantageous fashion. They are forced to live from hand to mouth, however extravagant that mode of life may be. But if it is socially desirable to leave the railways in private hands, it is desirable to secure them revenues sufficient to maintain efficient service, and with such revenues they would in all probability find it profitable at least to level down the present inequalities of outlay as between good times and bad, if not actually to undertake more work in periods of depression than in periods of activity. And what is true of the railways in this respect is probably true also of most other industries. The total volume of purchases and construction work which might with advantage to all concerned be systematically planned with reference to the business cycle runs in the billions.

Quite a different line of attack upon the problem is represented by the various schemes of unemployment insurance now in operation or under consideration by government agencies and private employers. Perhaps the most interesting of these plans is the Huber bill introduced into the Wisconsin legislature. This bill creates an Unemployment Insurance Company, which all manufacturers in the state would have to join, and to which they would pay premiums

varying according to their labor-turnover rates. These premiums would be used to provide unemployment allowances for employees discharged for no fault of their own. The central idea, however, is less to mitigate the misery of the men out of work than to prevent men from being discharged for lack of work. For by making his premium depend upon his labor turnover, this bill gives the employer an inducement to stabilize his working force. Just as compulsory accident insurance has led to a large reduction in the number of accidents, so it is believed that compulsory unemployment insurance would lead to a large reduction of involuntary idleness.

Concerning other plans for stabilizing economic activity—the improvement of employment offices, out-of-work benefits by labor unions, devices for stabilizing production in factories, a greater centralization of banking, "stabilizing the dollar," and the like—I shall say nothing, not because of lack of interest but because of lack of space. One matter, however, so nearly concerns economists that I must dwell upon it—the need of increasing our knowledge of the business cycle and putting this knowledge to better use.

All of us who have followed the crisis of 1920 and the prolonged liquidation which it started have had brought home to them the large speculative element in their thinking about the subject. For example, we have heard a great deal about "frozen credits" as a factor of the first magnitude in retarding re-

covery. We have read much about how these credits become "frozen" and how they may be "thawed." But if the factor is of first-rate importance we ought to know what a "frozen credit" is, what proportion of bank credits answers to the definition, what proportion of credits is "frozen" in ordinary times. The latter point is particularly significant and yet has been little attended to by bankers or economists. So far as I know, no adequate analysis has ever been made of bank loans from this point of view. Certainly our insight into the difficulties which we are confronting, and therefore our ability to meet these difficulties with success, would be increased if our banking authorities would compile and publish statistics of this character.

In general American banking statistics rank high, in comparison both with statistics from other fields at home and with banking statistics from other countries. But they present a second lamentable gap. Some 10,000 banks are connected with the Federal Reserve System, and concerning their condition we get reports five times a year. But there are 20,000 other banks concerning which we have but one report a year, and that a meager one. It is true that these 20,000 state and private banks all put together have only half the resources of the 10,000 member institutions. But in a situation where the financial position of the farmers counts heavily in all reckonings, it is ill that we have to conjecture facts which we might know. The Federal Reserve

Board or the Comptroller's Office would render a great service if they would fill this gap.

Once again, recent experience has taught us how poor are our statistics of unemployment, of wages, of earnings. When an attempt was made in 1921 to find how many men were out of work, the Bureau of Labor Statistics and the Advisory Committee of the President's Conference on Unemployment could not get within a million of each other's estimates. About part-time employment we know almost nothing. The prices of labor are always a matter of the first consequence, and there is especial need of current data—a need so pressing that it is hard to be grateful for the fragmentary surveys made from time to time by the Bureau of Labor Statistics. And even if we had comprehensive statistics of wage-rates, we should still be unable to make out changes in the economic position of the working classes or to get much light on the "buyers' strike," which is alleged to have precipitated the crisis of 1920, unless we had data for payroll disbursements and family earnings. All our comparisons between wages and cost of living are rendered doubtful, because the fluctuations of wages may be very imperfect representations of the fluctuations in family incomes.

Then there is the whole field of merchandising—a big section of our economic life which is so obscure that we cannot say even approximately how many retail and how many wholesale stores there are in

the country. This field is a difficult one, but is it really more difficult than agriculture, manufacturing, mining, or even transportation? Yet if one puts the current reports from a few department stores and mail-order houses which are published in the *Federal Reserve Bulletin* and the *Survey of Current Business* beside the material in the Year Book of the Department of Agriculture, the Census of Manufactures, the Geological Survey's reports on Mineral Resources, and the publications of the Interstate Commerce Commission, how slight the merchandising figures seem! And how difficult it is to see even a little bit into the business future when one has to guess at what is happening in the great processes of distributing merchandise. And how can we intelligently attack the problems of economic waste without a chance to follow goods beyond the walls of the factory and the tracks of the railways?

There are few members of our Association who have not felt the lacks which I have lamented and other lacks besides. Most of them are lacks which we cannot fill by individual enterprise. But we can do something as individuals by seizing every opportunity to use the data which are already available in our discussions of economic problems and to cooperate with the various agencies, public and private, which are striving to improve the range and character of statistical reporting. In this effort we have many allies. There is a rapidly growing sentiment among business men in favor of statistical

publicity. Indeed, the recent converts from this side sometimes err from an excess of zeal and propose impossibly elaborate inquiries—questionnaires that would require months to fill out. The statistical offices of the Federal Government—it is not invidious to mention especially the bureaus of the Department of Commerce and the research organizations of the Federal Reserve Board and the Federal Reserve banks—are showing a degree of enterprise which is most gratifying. Everything which we can do to increase interest in their output, and to answer their numerous calls for service, is a professional duty.

You remember Carlyle's description of the situation of England in 1843 when he spent the first seven weeks of the year in writing *"Past and Present"*:

"England is full of wealth," he wrote, "of multifarious produce, supply for human want in every kind; yet England is dying of inanition. With unabated bounty the land of England blooms and grows; waving with yellow harvests; thick-studded with workshops, industrial implements, with fifteen millions of workers, understood to be the strongest, the cunningest, and the willingest our Earth ever had; these men are here, the work they have done, the fruit they have realized is here, abundant, exuberant, on every hand of us: and behold, some baleful fiat as of Enchantment has gone forth, saying, 'Touch it not ye workers, ye master-workers, ye master-idlers; none of you can touch it, no man of you shall be the better for it; this is enchanted fruit.'"

It is true that Carlyle made the grave mistake of supposing that this condition of affairs was a chronic instead of an intermittent disease of the body politic; but for all that, his description applies as well to the United States in 1921 as to England in 1843. And this description points straight to the heart of the difficulty which we must face in our efforts to control the business cycle.

During this year millions of us were idle when we wished to work, billions of dollars' worth of plant and machinery stood unused when the owners longed to start their furnaces, and what we wanted to produce we needed to consume. The edict of enchantment which forbade us to do what we wished was pronounced by the money economy. We are periodically mastered by this social machinery we have made, and stand idle and needy at its bidding. For with all its efficiency the money economy has a fundamental defect—it warps the aim of our economic activity. What we want as human beings is to make serviceable goods. What we are compelled to do as citizens of the money economy is to make money. And when for any reason it is not profitable to make goods, we are forced to sacrifice our will as human beings to our will as money makers. That is the heart of the paradox.

If I am right about this fundamental matter, I can hardly be wrong in taking an optimistic view of the future. For since the money economy is a complex of human institutions, it is subject to

amendment. What we have to do is to find out just how the rules of our own making thwart our wishes and to change them in detail or change them drastically as the case may require. Not that this task is easy. On the contrary, the work of analysis is difficult intellectually and the work of devising remedies and putting them into effect is harder still. But one has slender confidence in the vitality of the race and in the power of scientific method if he thinks a task of this technical sort is beyond man's power.

CHAPTER II

STABILIZING THE DOLLAR

Irving Fisher

THE present generation is witnessing the most stupendous fluctuations in the purchasing power of money in the whole history of this long-suffering world. Never before have such fluctuations been so wide, so universal, so diverse, or so long continued. For years to come the problem of the instability of money will continue to engage the attention of economists, business men, and statesmen. We shall need to study its relation to international exchanges, to international trade, to international indebtedness and reparations, as well as to the internal finance and politics of each country and the private fortunes of its citizens.

The need of our times is stabilization. Politically we need stable governments and a stable state of peace among them. Economically we need stable trade, finance, and industry, and a stable standard for the contracts by which that trade, finance, and industry may be conducted.

These two sorts of stability, political and economic, are inextricably interrelated. It is usually under

the stress of political instability, when a government is subject to the danger of breakdown and cannot balance its budget, that it resorts to that form of forced loan called irredeemable paper money, thus causing monetary instability. And, conversely, such economic instability, such debauching of the monetary standard, while it puts off the evil day in politics, is often itself the cause of political instability, unrest, and even revolution. The French had a saying that after the paper money printing press comes the guillotine, a saying not altogether inapt for Russia to-day.

And so, to solve the chief economic problem of the day, that of stabilizing the moneys of the world, we cannot ignore the political problem of stabilizing governmental conditions. The first step in solving the money problem is to stop inflation, where inflation is still going on, as in Germany, Austria, Poland, and Russia. But no government will stop inflation until it can balance its budget, and it often appears that it cannot balance its budget until it can reduce the burden of militarism, and it cannot reduce the burden of militarism until there are international guaranties of keeping the peace, and there can be, in my opinion, no adequate international guaranties of keeping the peace except through the League (or "a" League) of Nations. Thus the problem of the League of Nations, primarily political, is linked with the problem of monetary stability, primarily economic.

But the mere stopping of inflation is only a part of the problem of monetary stability. We must stop deflation as well. These two, inflation and deflation, are twin evils and not, as many unthinkingly assume, antidotes one of the other.

There seem to have been three principal reasons why the recent deflation, as in the United States and England, was regarded as desirable: (1) There was the popular notion that pre-war prices *were* normal and that, therefore, we should endeavor to return to them, coupled probably with the erroneous idea, taken for granted, that the fall of prices would not entail a fall of incomes; (2) in countries which had lost the gold standard, there was the natural ambition to return to it for the benefit of trade, and for the maintenance of the credit of the nation, and to satisfy a sentiment that national honor required such a return to the pre-war coins; (3) there was the idea that the inflated levels of prices which the war had brought were unjust to creditors, who had made their contracts on a lower level of prices.

So far as the first of these three arguments is concerned, it is entirely without foundation. The year 1914 was no more "normal" than 1920 or 1896. One level of prices is quite as normal and quite as desirable as another, if only it can be maintained permanently.

The second argument is technically correct and it is easily understood how pride in commercial honor,

in England particularly, can never feel fully satisfied without such technical fulfillment of expressed obligations. But if we penetrate beyond technicalities we might conclude, by the same logic, that we are bound by the spirit of contracts, though not by the letter, to pay not simply the stipulated *gold* but the original *purchasing power* which the gold represented when the promises were made.

This brings us to the third argument which, it seems to me, is the really strong and vital argument, namely, that to pay off debts in depreciated money is an injustice to the creditor class, which includes the many humble creditors of the government who came to its rescue in the crisis of war. Money as a standard of deferred payments ought to serve precisely this purpose—the purpose of enabling the contracting parties to carry out the contract in terms of the purchasing power contemplated and understood on both sides at the time the contract was made. To the extent that the monetary standard has varied between the date of the contract and the date of its fulfillment, to that extent will injustice be done to one or other of the contracting parties and in so far as such change in the standard—say depreciation—can be remedied by a counter-change—say deflation—the latter is justified.

But, in practice, this problem of correcting injustice is immensely complicated by the fact that not all contracts require the same adjustment. And while we are debating whether we

ought to inflate or deflate and how much, new contracts are constantly being made at the new price levels. Deflation was wanted to do justice to pre-war creditors; and doubtless it did so *to the few pre-war creditors still surviving.* But it did injustice to the much larger number of war and post-war debtors. We certainly have no right to choose our standard to help the few and hurt the many. We must recognize the fact that every disturbance of our standard makes it impossible to do justice to everybody.

Existing contracts include those made at every stage of depreciation, and it is a physical impossibility to make a separate standard for every separate contract. Evidently the best that we can do is to strike an average. If all debts now existing had been contracted in 1914, before the war, ideal justice would clearly be rendered by restoring the pre-war sovereign, dollar, franc, etc. (not merely technically but in actual value) by such deflation as would reduce the general level of prices to exactly that of 1914. If, on the other hand, it were true that all contracts now existing happened to have been entered into in 1920, justice would require that we should maintain the high level of prices of 1920 precisely as it was in 1920. Undoubtedly the best average we can strike lies between these two extremes, and nearer the levels of 1920 than those of 1914. If an estimate were made, as it should be, of the volume of outstanding contracts classified ac-

cording to their age, it would be found that some contracts are one day old, some are one month old, some are one year old, and some are a century old, but the great mass of contracts are of recent origin. The average, or center of gravity, of the total existing indebtedness is probably always somewhat near the present. I once made, before the war, a very rough estimate that contracts in the United States were probably, on the average, something like one year old.

The war, of course, introduced an enormous mass of government debts, most of which were contracted at the high levels of 1917 and 1918, so that for an indefinite time in the future the center of gravity of debts will be greatly influenced by these war-time obligations. When the Liberty Loans of the United States were launched, our price level stood on the average at 195, or roughly double the 1913 level, while at the present writing the price level is 148, or halfway back to 1913. Evidently our deflation has been very greatly overdone, for the twenty-two billions of Liberty Bonds launched at the high levels of 1917-18-19 have no counterpart in the few surviving contracts launched at the pre-war level of 100. Moreover, we must not forget the contracts of 1920 itself, when the policy of deflation began. Roughly, I should say that had the deflation from the 243 of 1920 stopped at 190, it would have accomplished more justice than injustice. In the far greater deflation which has been accomplished, however, in-

justice to debtors has preponderated and hence our trade depression.

What we now need is a rise in prices. But an inflation which would bring us back to the 243 of 1920, or even to the 190 at which we ought to have stopped on the way down, would produce a preponderate injustice to creditors. Justice requires a return to perhaps about 175, which level when attained should be retained. Certainly to go farther toward pre-war levels would greatly imperil the cause of justice and prosperity.

For England much the same argument holds, as Reginald McKenna, formerly Chancellor of the British Exchequer and now Chairman of the largest bank in the world, has said:

"Two years ago when we were suffering the discomfort of a rapid rise in the cost of living, I ventured upon a word of warning. Although the high prices were due to the monetary and credit inflation consequent upon the immense borrowing by the Government during the war, I endeavored to show that any attempt to drive prices down by a policy of forced deflation would lead to grave trade depression and widespread unemployment.

"Last year when I addressed you, a policy of deflation had been publicly announced and steadily pursued for a considerable period. I discussed on that occasion inflation and deflation in detail, and outlined so far as I could the monetary, trade and social conditions which arise in either case. We have recently learned of the evil consequences of deflation in the school of experience and this policy

has for the time being fallen into disrepute. But unfortunately the lesson has had the effect of turning a considerable body of opinion back in favor of inflation, and we seem now to have in prospect the regular alternation between the two policies, each to be adopted in turn as a remedy for the other. . . .

"The truth is, of course, that both are bad. What is needed is stability, the point from which both alike proceed in opposite directions. When we have stability of prices, we have a basis upon which trade can be carried on with confidence. Manufacturers, merchants, and retailers are then able to make their contracts with reasonable assurance that the debts created under the contracts will be paid when due in a currency of the same purchasing value as it had when the obligations were assumed."

The trouble is that in trying to establish stability we encounter the resistance of those who have been hurt by former instability. Some persons to-day are suffering from past inflation and some from past deflation, and there is developing a conflict between them.

The war inflation led to a demand to reduce the "high cost of living" to the pre-war level. The attempt to do this through deflation led to a demand of the debtor farmer for freer money and credit and a protest against the fall in price of his products. I have on my desk, as I write, two articles—one written by a "friend of the farmer" demanding inflation again and another by a "friend of the salaried man" demanding further deflation.

Of the two dangers, excessive reinflation looms up

as the more dangerous. In some respects the present situation in the United States is beginning to bear a rough resemblance to the situation in 1896, when Mr. Bryan made his entry into politics as the spokesman of inflation. In 1896, when Mr. Bryan came to the fore, prices had been falling ever since the Civil War when, in 1865, they stood at the highest point in American history. Between that high point in 1865 and the low point in 1896 prices in the United States shrank by nearly two thirds, that is, the dollar's buying power was multiplied nearly threefold within a generation. During the first half of that period we were engaged in getting back to the gold basis, but the appreciation continued through the other half also, in spite of a growing discontent and a sentiment for inflation. After the panic of 1893 there was so great an outcry against "low prices," especially by the farmer and the silver miner, that the country was ready to take up Bryan's remedy for deflation, namely, inflation. I shudder to think what the consequences would have been if Bryan had been elected and we had adopted the free coinage of silver at sixteen to one. And yet, even though we did escape silver inflation, we began to suffer a more gradual inflation from gold, so that shortly after the beginning of this century the whole world, which in Bryan's time had been complaining of slow business, found itself complaining quite as lustily of the "high cost of living."

It was the "high cost of living" which in 1920 led

to the reverse reaction and the idea of returning to the "pre-war normal," a phrase as alluring as that invoked by Bryan who wanted to return to the "dollar of the daddies." Just as he proposed inflation to cure deflation, so in 1920 deflation was proposed to cure inflation. And just as the inflation following 1896 failed as a remedy for deflation, so the deflation following 1920 failed as a remedy for inflation.

We are now in a critical period, one in which the injuries suffered by special interests appear to require opposite and extreme remedies, while the general welfare demands moderation and the establishment of a stable standard. Shall we sit idly by and let the accidents and circumstances of various kinds continue the successive jolts, alternating upheavals and depressions, which make the people cry out, first, against the "high cost of living," and then against "hard times?" Or shall we enter on a selfish class struggle between the creditor and debtor classes? Or, finally, shall we set about the problem of bringing order out of chaos?

The first would seem to be the easiest choice, if it can be called a choice. The policy of drift is, in fact, the usual one taken, because the mass of people do not see whither they are drifting. Some "standpatters" are against any "agitation" for stabilizing the dollar. Their idea is to "sit on the lid," lest there should be let loose all sorts of proposals, including many which are wild and impracticable. My own idea is quite the reverse; that such repression is it-

self impracticable and, could it be carried out, would be but temporary and would have the usual effect which comes from sitting on safety valves. The truth is, wild and impracticable schemes are already abroad. The only effective way to combat them is by means of something better; just as we combat quackery not by inaction but by employing scientific medicine.

In short, the policy of drift is sure gradually to bring us to the second of these three choices, a selfish struggle between inflationists and contractionists, just as was the case following the Civil War and other wars. Greenbackism, Populism, and Free-silverism were each grounded on class feeling and distrust growing out of the fall of prices between the Civil War and 1896; and during the last twenty-five years of rising prices another form of class struggle, Socialism, has flourished unprecedentedly. In whichever direction prices move, we are sure to have discontent as a result. Stability alone can arrest the growth of these social cancers. Bankers ought preëminently (and many of the most astute among them see it now) to be the ones to desire stability and to seek a distinctly scientific way out of chaos, as against the alternation of unscientific nostrums and a class struggle which may make the whole banking fraternity appear to the farmer and the laborer in the guise of a selfish creditor class, seeking its pound of flesh at the expense of the life-blood of industry and commerce. Further

neglect of our money problem resulting, as it must, in further inflation or deflation, or both, will bear more of this bitter fruit. It should be an axiom of economic history that monetary instability leads straight to class conflict.

I most solemnly believe that one of the great dangers of to-day lies in blind, complacent "standpatism." Yet because of just this sort of shortsighted conservatism, we are likely to miss the great opportunity which the present situation affords, which is to choose the third of the three methods of dealing with the situation. But, if we are seriously to set about solving the money problem, we must first get a bird's-eye view of the field which that problem covers.

A great teacher once said to his students: "In beginning the study of any social situation, put to yourself four questions: What is it? Why is it? What of it? What are you going to do about it?" Accordingly I shall take up: (1) the *facts* about the purchasing power of money; (2) the chief *causes* which explain these facts; (3) the resultant *evils* which make a remedy desirable; and (4) the *remedy*.

First, then, we may summarize the facts. The present situation in which we all keenly suffered from recent price upheavals is exceptional only in degree. It is a great mistake to assume that we had stability before the war. The facts are that never yet has there existed a really stable price level. We now know this from actual measurement by means

of what are called index numbers. The prices of various articles do not move together, but scatter or disperse like the fragments of a bursting shell. Yet there is always a definite average movement just as there is a definite path of the center of gravity of the shell fragments. In order to depict the average movement of prices we must first have some means of measuring it. This is the "index number," a number showing the average rise or fall of prices. If one commodity has risen 4 per cent since last month and another, 10 per cent, the average rise of the two is midway between 4 per cent and 10 per cent, or 7 per cent. It is $\frac{4+10}{2} = 7$. If we call the price level of the two articles last month 100 per cent, then 107 per cent is the "index number" for the prices of the two articles this month. The same principle, of course, applies to any number of commodities.

Many different systems of index numbers are now before the public—such as those of Bradstreet, Dun, Gibson, the *Annalist,* the Federal Reserve Bank, the United States Bureau of Labor Statistics, the Canadian Department of Labor, the London *Economist,* the London *Statist,* the London *Times,* and the British Board of Trade. The present index number of the United States Bureau of Labor Statistics covers 300 commodities.

By means of such index number we now know, with some accuracy, the changes which have oc-

curred in the level of prices and so in the purchasing power of money. It is an interesting fact that throughout the ages, though prices have sometimes fallen, they have generally risen. In France prices before the war were four to six times as high as five hundred years ago and five to ten times as high as a thousand years ago.

After 1896 prices rose rapidly up to the outbreak of the war. But a much greater upward impulse was imparted by the war itself. The rise before the war, great as it was, amounted on the average, in the United States, to only one fifth of one per cent per month, and in England to still less; whereas between 1914, when the war began, and 1920, when the crest of the wave was reached, the rise amounted to 1.2 per cent per month in the United States, and much more in many other countries—in Germany to 3.5 per cent per month, and in Russia to 16 per cent per month. To these German and Russian rates, among the records of index numbers which have been computed, there is no parallel.

Since May, 1920, there has been a steep fall, not only in the United States, but in England and Japan, as well as less of a fall in France and Italy, and in Germany, Austria, Poland, Russia, Finland, and Bulgaria there has been a continued rise.

So much for the facts. We come now to the second of our four questions, *Why* is the price level always changing? In recent popular discussions a great variety of reasons have been assigned. I shall

not discuss in detail these alleged explanations. While some of them represent important factors in affecting particular prices, nevertheless only one of them, namely, monetary and credit change, has been a large factor in affecting the *general level* of prices. Obviously no explanation of a general rise of prices is sufficient which merely explains one price in terms of another price. To say that the cause of rising "prices" is rising "wages" is merely to say that the prices of commodities have risen because the price of labor has risen; and we might as well turn it about and say that the price of labor has risen because the price of food has risen and so driven workmen to strike for higher wages. Such explanations are as unsatisfactory as the answer of the gardener who, when asked, "Where is the hoe?" replied, "It's with the rake," and when asked, "Where is the rake?" replied, "It's with the hoe."

Scarcity and abundance will, in selected cases, go far toward explaining the rise and fall of individual prices. But they will not go far toward explaining changes in the general level of prices. All those who have offered such explanations make one fatal mistake. They look at the wrong side of the market. They seek the causes wholly in the *goods,* the prices of which have changed, and not at all in the *money,* in terms of which those prices are expressed. It is hardly probable that commodities should rise in price *en masse* without some simple explanation in common. We would scarcely expect

that, by mere coincidence, a thousand commodities are simultaneously scarce or simultaneously abundant. We seldom have world feasts or world famines. If the corn crop is short in some places, it is abundant in other places. If it is short in all places, the crop of wheat or barley or some other staple food is practically certain to be at least normal. If there is war in Japan, it is not likely that there will also be war in Brazil. A world war or even anything as near to a world war as the conflict ending in 1918 is a most—*the* most—unprecedented event in all history.

Our conclusion is that, until recently at least, it was a fall in the value of gold, or money, that had taken place, rather than a simultaneous rise in the value of everything else. We have direct statistics to indicate the same conclusion. These show that, up to the outbreak of the war in 1914, there was no progressive scarcity of goods in general, but rather an increased abundance, and that this continued to be true in the United States even after 1914, possibly up to our entrance into the war in 1917. Only during the war was there, in this generation, a progressive scarcity of goods in general. Even during the war, money inflation was much the more important factor. And after the war was over, there has been little in the statistics of goods to explain price movements. Thus, in 1921, goods were scarcer than usual; yet prices fell.

That great price movements are chiefly monetary

is evidenced by the fact that countries of like monetary standards have like price movements. Thus—to consider gold standard countries—there was, as long as the United States and England used the gold standard, a remarkable family resemblance between the curves representing the index numbers of these countries. Again, the price movements in silver standard countries show a strong likeness, as in India and China from 1873 to 1896. On the other hand, we find a great contrast between gold and silver standard countries. Speaking roughly, we may say that between 1873 and 1896 the price level in gold countries fell twenty-five per cent and in silver countries rose thirty per cent and, what is equally important, this divergence between the two price movements corresponded roughly to the divergence between gold and silver.

For the World War the data are so meager that it is impossible to express the relations in exact figures, but we may arrange the different countries in the approximate order in which their prices rose. As a result, we find that the order of the nations corresponds, in general, with the order in which the currencies in those nations were inflated by paper, as well as with the order in which their monetary units have depreciated in the foreign exchange markets. This order—of ascending prices and of inflated currency—was: India, Australia, New Zealand, United States, Canada, Japan, Sweden, Switzerland, Denmark, Italy, Holland, England, Norway, France,

Germany, Austria, and Russia. Again, since 1920 the countries like the United States and England which have tried to deflate have had falling prices; while the countries, like Germany and Austria and Russia, which have continued to inflate have had rising prices.

Confirmatory evidence that price movements usually reflect monetary conditions is found in the fact that the ups and downs of prices correspond with the ups and downs of the money supply—whether from the gold mines, the banks, or the government printing presses. Throughout all history this has been so.

The conclusion toward which the foregoing and other arguments lead is that, in the past, the great outstanding disturber of the price level has always been money (including credit). Money is so much an accepted convenience in practice that it has become a great stumbling-block in theory. Since we talk always in terms of money and live in a money atmosphere, as it were, we become as unconscious of it as we do of the air we breathe. Some people, even intelligent people, bolster up the illusion that the dollar is a stable standard of value by reference to the fact that "the price of gold" never changes. Only recently a former government officer asserted that the value of gold is evidently constant because its price is fixed!

I once asked a dentist if the "high cost of living" had affected the price of his materials.

"Yes, of course," he replied.

"Of the gold you buy for fillings?" I ventured jokingly, expecting him to know that this could not be.

To my surprise he answered, "I suppose so," and sent his assistant to look up the matter.

She returned presently and solemnly informed us that the price he paid for his gold was substantially the same now as it always had been during the thirty years he had been buying it.

"Isn't that surprising!" he exclaimed. "Gold must be a very stable commodity."

"It's just as surprising," I replied, "as that the price of a quart of milk is always two pints of milk."

"I don't see the point."

"Well, what is a dollar?" I asked.

"I don't know—what *is* it?"

That simple question is vital. The almost universal ignorance of the answer is largely responsible for the almost universal misunderstanding of the high cost of living and the depression in trade! A dollar is 25.8 grains of standard gold—that is, of gold nine tenths fine; and, since an ounce is 480 grains, the number of dollars in an ounce is $480 \div 25.8$, or 18.60. In other words, any 100-ounce lump of standard gold taken by a gold miner to the mint can be cut up and coined into 1860 dollars and handed back to him. Naturally he gets $18.60 an ounce, and this "price" can never vary so long as the weight of the dollar does not vary.

Thus 100 ounces of gold will always be worth 1860

dollars of gold, so long as 1860 dollars contain 100 ounces of gold; just as a quart of milk will always be worth two pints of milk so long as two pints make a quart. Gold is stable in terms of itself and in terms of itself only. Fixing the dollar at 25.8 grains of gold fixes the price of gold at $18.60 an ounce. But, of course, this fixity of dollar weight, or of gold price in terms of gold, does not fix its price or value in terms of other commodities. It does not release gold from the effects of supply and demand. The value of the dollar, as shown by its general purchasing power, is not stable, but fluctuates with supply and demand as does the value (or purchasing power) of anything else. There is only this difference: Since a descending value of gold cannot lower the price of gold, it must raise the prices of other things in terms of gold; and since an ascending value of gold cannot raise the price of gold, it lowers the prices of other things in terms of gold. The supply and demand of gold and of other things which affect the real value or purchasing power of gold cannot be thwarted. Since we deny to supply and demand of gold the normal outlet of raising or lowering the price of gold, they take their revenge by lowering or raising the prices of other things.

If, instead of gold, we were to make milk the standard, or eggs—that is, if we used these to purchase all other things—they would acquire the same fixity of price—that is, price in terms of milk or eggs; and we would fall victims to the same illusion of

inherent fixity. If a dollar, instead of being 25.8 grains of gold, were, let us say, a dozen eggs, obviously the price of eggs would always be a dollar a dozen simply because a dollar *is* a dozen eggs. If the hens did not lay, the price of eggs would not rise (or vary at all), but, instead, the prices of other commodities in terms of eggs would fall; while if eggs were a drug on the market, their price would not fall (or vary at all), but the prices of other commodities, in terms of eggs, would rise—and the mystified public would then be inquiring gravely, "Why this high cost of living?" The world's prices would then be at the mercy of hens, just as now they are at the mercy of gold mines, of the printing press, and of the banking policy of giving or withholding credit.

We have been deceived by appearances in commerce, just as we have been deceived by appearances in astronomy. The earth seems to be fixed and all the other heavenly bodies seem to move.

An increase of money, then, always tends to raise prices. It was thus that prices rose in the mining camps of California a half dozen decades ago, and in Colorado and the Klondike one or two decades ago. This local rise of prices soon communicated itself to other places; for the price level cannot in one locality greatly exceed that in a neighboring locality without causing an export of money to the locality of the lower level. Thus new money gradually finds its way into circulation throughout the world, raising

prices as it flows from place to place, the process consisting, in all cases, of the effort on the part of somebody to get rid of an inconvenient surplus—a surplus which cannot be dissipated by transferring it from hand to hand but only by a rise of prices. Even more commonly is the price level affected by credit currency—that is, the so-called "money I have in the bank," which one pays out in checks. Moreover, the price level is affected, though seldom in so extreme a degree, by the rapidity of circulation both of money and of deposit currency and by the amount of commodities in trade.

The price level may rise because of an increase of money, or of deposit currency, or because of their rapidity of circulation, or because of a decrease in the volume of trade. And back of these causes (money, deposits, their velocities, and trade) lie innumerable other causes acting through one or more of them.

And now we reach our third question. What of it all? Even if the value of the dollar *is* constantly changing, and the changes *are* chiefly due to monetary and credit causes, is there any real harm? Is it not merely a matter of bookkeeping?

Now, if for each one of us the change of income were to keep up exactly with the change in cost of living, then the high cost of living and fall of prices would have no terrors; they would be merely on paper. But no such perfect adjustment ever occurs or can occur. Outstanding contracts and under-

standings in terms of money make them out of the question.

We have already noted the conflicting interests at the present time of the debtor and the creditor. If Congress should suddenly decree that each present "dollar" should henceforth be two dollars, it is clear that, in practice, the change would not be simply nominal, or a mere matter of bookkeeping. Every creditor, every bondholder, every insurance policy beneficiary, every bank depositor would clearly be cheated out of half his due. If, on the other hand, Congress should decree that what has hitherto been a "dollar" should henceforth be fifty cents, every debtor would be suddenly saddled with a weight of debt twice as heavy as that which he had originally assumed. The same principle of hardship applies to any change in the purchasing power of the dollar even when, as is ordinarily the case, it is unintentional. Moreover, it cannot properly be said that human responsibility is not a factor. Congress, which, under the Constitution, has the power to regulate the value of money, lets that value go unregulated. With each change in the purchasing power of money, in other words, with each change in the price level, some people lose what properly belongs to them, and others gain what does not properly belong to them. Our sense of "social justice" is offended.

Consider a working girl who put a hundred dollars in the savings bank in 1896. In 1920, if she had

allowed it to accumulate at three per cent interest, she would have had two hundred dollars. But when she tried to spend her two hundred dollars, she would have found that things cost about double what they did in 1896. Thus she would get for her entire two hundred dollars only as much as she could have bought for her original one hundred dollars at the beginning. After a score of years of self-denial, where is her reward, her interest? She has been (without the intention of anybody) cheated out of all her interest, through the depreciation of the "dollars" in terms of which her savings-bank account has been kept! Her interest accrued only fast enough to offset the depreciation in her principal. Like Alice Through the Looking-Glass she has had to run as fast as she could in order to stand still.

The bondholder is in the same plight. If he has been "living on his interest" the purchasing power of his principal has been decreasing, so that really, although without knowing it, he has been living on capital. To keep his principal unimpaired he would have had to reinvest *all* his interest!

In central Europe to-day these injustices are magnified to grotesque proportions. The story is told, whether invented or not does not here matter, of a Polish clothier who retired from business selling out his stock of several hundred suits of clothes for a million marks. He then lent this money at ten per cent interest, and when a year later he was repaid

he found that with his principal and interest he could buy himself one suit of clothes!

To trace such unjust shifts of ownership of wealth and income, let us take a corporation case in the United States, typical of the havoc which the war wrought. Assuming the war to have doubled prices, a corporation which before the war was distributing ten million dollars—five million to its stockholders and five million to its bondholders—(these two sums being, say five per cent of the capitals respectively invested) would have, at the close of the war, not ten million dollars to distribute, but twenty million dollars. This new figure would no longer be evenly distributed. The bondholder is restricted by his contract to his five million dollars, and leaves to the stockholders the remaining fifteen million. Nominally, the bondholder has the same income as before, but actually in purchasing power he has lost half. Nominally, the stockholder is receiving three times what he did before, but in actual purchasing power only one and a half times, or fifty per cent more. In other words, the stockholder has gained fifty per cent, while the bondholder has lost fifty per cent. The shrinkage of the dollar has virtually picked the pockets of one for the benefit of the other.

The total financial interests thus affected by changes in the price level are colossal. Shortly before the war Alfred Neymarck estimated the total securities then circulating in the world at 175 to 200 billion dollars! Now, of course, the volume of

securities is greater, and the war bonds swell the total by some fifty per cent. And besides negotiable securities there are many private debts which never circulate. The total shift each year must run up into many billions. Millions of people in the United States own Liberty Bonds; millions hold War Savings Certificates; millions are financially interested in the soldiers' insurance, the total of which has amounted to a score of billions of dollars, millions own other bonds or mortgages or hold savings in the banks. In Europe, of course, the shift between contracting parties has been even more rapid, because the depreciation of their money has gone on more swiftly. In central Europe the middle class of salaried people and "safe" investors have been ruined. In Germany, assuming that the mark does not rise during the life of the war bonds, the German bondholder who subscribes for bonds will be mulcted of over ninety-five per cent of their value.

With millions of people to be affected and hundreds of billions of dollars, marks, etc., stipulated in contracts or otherwise fixed or understood, it becomes a matter of grave concern to the whole world what the "dollar," the "mark," etc., in these contracts and understandings is to be. When prices rise great profits are made, because the "profiteer" or stockholder wins without effort from the bondholder and from the salaried and wage employees. His easy profits lead him to "extend himself" until, when interest charges, rents, salaries,

and wages catch up, as in 1920, his prosperity ceases, he gets caught in debt and becomes a bankrupt, and a general crisis or even panic may ensue. Every rise in the cost of living brings new recruits to the malcontents who feel victimized by society and have come to hate society. They cite, in their indictment, the high price of necessities and the high profits of certain great corporations, both of which they attribute, not to the aberrations of our monetary yardstick but to deliberate plundering by "profiteers" or a social system of "exploitation." They grow continually more suspicious and nurse an imaginary grudge against the world. Reversely, when prices are falling the debtor grumbles and wants to wreak vengeance on the money lenders and the gold bugs of Wall Street. A conservative who fears to stabilize money because the idea seems radical, is blind to the fact that it is *un*stable money which inflames radicalism.

We have seen that the primary evil of these aberrations is social injustice, a sort of subtle pocket picking. At first glance it might seem that such a transfer is not a general evil, for what some lose others gain. But the secondary evils *are* very general; namely, the evils from speculation, uncertainty, crises, depression, resentment, violence, and ill-considered legislation. Thus, curiously enough, as with ordinary gambling, even the ill-gotten gains of the winners are largely swept away in the end. Thus, when prices are rising, the strikes, riots, and violence,

which are the secondary effects of rising prices, destroy the profits of the winners by blocking the wheels of industry and even destroying its tools. If we are going to have discontented workmen smash our windows and our machinery, it is not so much a question of who is going to get the profits as a question of whether there are going to be any profits.

Similarly when, during a period of falling prices, the vampire is not the profit-taker but the creditor, the winner is also apt to lose his winnings. The bondholder is usually and normally the simple investor of capital, the "silent partner" in business. He lacks the temperament and training to be a captain of industry. But, after years of falling prices, during which he has been draining, unobserved, the life-blood of the enterprise whose bonds he holds until there is no profit left for the captain of industry who has been managing it, the mortgage is foreclosed and the captain, held responsible for the shipwreck, is forced out, discredited, humiliated, and unable to articulate or even to understand that it was not wholly his fault, if at all, but the fault of his instrument of reckoning, the dollar. Thereupon the bondholder is forced to take control. Thus the management drifts into wrong hands, turns into mismanagement, and the bondholder is hoist with his own petard. He has been an unconscious Shylock, exacting his pound of flesh until he has overreached himself. As David Harum wisely said, "It ain't a

bad idee to be willin' to let the other feller make a dollar once in a while."

In short, almost no one gains long or gains much either from rising prices or falling prices. Either implies enormous social wastes. Therefore, to society as a whole, there is a great net loss, just as there would be from confusion and uncertainty in the yardstick of length or in the pound of weight. Stabilizing the monetary units is a reform on which all classes should unite—debtors and creditors, bondholders and stockholders, employers and employees, rich and poor.

We are now ready for the last and most practical question, "What are you going to do about it?" The plan described below is that elaborated in my book, "Stabilizing the Dollar." The essence of my plan is very simple. The real culprit being the dollar, the real remedy is to fix the purchasing power of the dollar.

Our dollar is now simply a fixed weight of gold —a unit of weight, masquerading as a unit of value. A twentieth of an ounce of gold is no more truly a unit of value or general purchasing power than a pound of sugar or a dozen eggs. It is almost as absurd to define a unit of value, or general purchasing power, in terms of weight as to define a unit of length in terms of weight. We would scarcely define a yardstick as any stick which weighs an ounce. There used to be a song about a shopkeeper who, being asked the price of a box of socks replied, "One

dollar a box." "I'll take the box," said the customer, handing over his dollar; whereupon the shopkeeper took out the socks and handed over the box. "I sold you the box, not the socks," said he. Our dollar is somewhat like that box. It keeps its form but loses its contents. The removal, in this case, is not intentional or committed by one of the parties to the contract, but so much the worse!—for the injured party has no recourse. It is as if the buyer of the box of socks were forced to agree in advance to let a bystander remove or insert socks *ad libitum*.

What good does it do us to be assured that our dollar *weighs* just the same amount as ever? What we are concerned about is that it *buys* the same amount. What is needed is to stabilize or standardize the dollar, just as we have already standardized the yardstick, the pound weight, the bushel basket, the pint cup, the horse-power, the volt, and, indeed, all the units of commerce except the dollar. All these units of commerce have passed through the evolution from the rough-and-ready units of primitive times to the accurate ones of to-day, when modern science puts the finest possible point on measurements of all kinds. Once the yard was defined, in a rough and ready way, as the girth of the chieftain of the tribe and was called a gird. Later, it was the length of the arm of Henry I and still later the length of a bar of iron in the Tower of London. To-day we have at Washington a Bureau of Standards, where the modern yardstick is determined by a bar

of metal amalgam, noted for its insensibility to changes in temperature, but nevertheless kept in a room of constant temperature, under a glass case, and not approached by the observer, lest the warmth of his body should cause it to vary, but sighted through a telescope across the room!

Except the dollar, none of the old rough and ready units are any longer considered good enough for modern business. The dollar is the only survival of those primitive crudities. Imagine the modern American business man tolerating a yard defined as the girth of the President of the United States! Suppose contracts in yards of cloth which had been made in Mr. Taft's administration to be fulfilled in the Wilson administration, or contracted in the Wilson administration and fulfilled in the Harding administration!

And yet the shrinkage and expansion in such a yardstick would be no greater than the shrinkage and expansion we have suffered in the far more important yardstick of commerce, the dollar; and this yardstick is used, not only in the few contracts in which the yardstick of length is named, but in all contracts of business. We tolerate our crazy dollar only because the havoc it plays is laid to other agencies. If its victims knew the truth about the dollar, it would be put in a strait-jacket at the very next session of Congress; for the evils of it—evils of confusion, uncertainty, social injustice, discontent, and disorder—are as vast as would be the evils if

all the other units of commerce—the yardstick, the bushel basket, the hours of work, etc.—should be left to the tender mercies of chance. Yet we tenaciously keep to that false standard in the blissful assumption that it never varies, justifying this illusion by noting that the price of gold, in terms of itself, always remains $18.60 an ounce, nine tenths fine! We seem to like to humbug ourselves.

A true standard of value, or general purchasing power over commodities, should not be dependent on one commodity merely, whether that commodity be gold or silver or wheat or what not. Two commodities would be better than one, just as two tipsy men walk more steadily arm in arm than separately. Whenever they tend to lurch in opposite directions, they neutralize each other. This is the argument which used to be urged for bimetalism, symmetalism, and other plans for uniting gold and silver. And the argument applies whenever gold and silver move in opposite directions, as from 1873 to 1896. If, for instance, a generation ago we had adopted a dollar of an amalgam [1] consisting of half of the former gold dollar and half of the former silver dollar, our price level would not have suffered the rapid fall it did prior to 1896 in common with the units of other gold-standard countries, nor would it have suffered the rapid rise which the units of silver-

[1] A bill for this purpose was actually proposed in 1879 by Congressman Stephens. (Hepburn, "History of Currency in the United States," p. 288.)

standard countries experienced. It would have kept intermediate between the diverging price movements of gold countries on the one hand and silver countries on the other.

But such an amalgam of only two commodities, while in many cases it would be steadier than either and in all cases steadier than the less steady of the two, would not really be very steady. A composite of gold, silver, copper, platinum, and all the other metals would be somewhat more stable than an amalgam of two, just as a number of tipsy men can walk more steadily arm in arm than two only, it being wholly unlikely that all the men in the line will lurch in the same direction at the same instant. The lurching of some in one direction can always be depended on to offset materially the lurching of others in the other direction. We can usually trust to luck if there is enough of it!

But why use metals? The index numbers of the United States Bureau of Labor Statistics show that the group of "metals and metal products," taken as a whole, is the most erratic of all the nine groups of commodities—food, clothes, fuel, building materials, house furnishing goods, drugs, etc. In order to secure a dollar constant in its purchasing power over goods in general, it should, in effect, be a composite of those very goods in general. For instance, we might imagine a composite commodity dollar consisting of 2 board feet of lumber (made up of various kinds); 1/20 of a bushel of wheat; 3/4 of

a pound of steers; 1/2 of a pound of meat; 30 pounds of coal; 1/100 of a barrel of white flour; 1 pound of sugar; 1/2 of a pound of hogs; 1/3 of a pound of cotton; 1/3 of a gallon of petroleum; 1 egg; 1 pint of milk; 1 ounce of butter; 1/30 of a bushel of corn; 1/25 of a bushel of potatoes; 1/100 of a pair of shoes; 1 1/2 pounds of hay; 1 ounce of hides; 1 ounce of tobacco at the farm; 1/2 of an ounce of manufactured tobacco; 1 1/2 ounces of lard; 1/2 of an ounce of leather; 1/7 of an ounce of wool; 3/4 of a pound of steel; 1 ounce of copper; 1/10 of an ounce of rubber; 1/300 of a gallon of alcohol; 2 ounces of soap, etc. These happen to be the relative quantities of some of the three hundred commodities used by the United States Bureau of Labor Statistics in making up its index number of prices. The entire list, of which the articles specified are the more important, was actually worth one dollar in 1909.

If at that time we had established such a dollar as our unit—that is, a composite dollar consisting of a big basket containing those three hundred bits of goods—that composite basketful of commodities—or "goods-dollar," let us call it—would evidently have to be worth a dollar at all times; and the cost of living—at least the cost of the representative assortment in that basket—could not rise or fall. That assortment would always cost a dollar simply because a dollar is that assortment, just as the twentieth of an ounce of gold is now always worth a dollar, because a dollar *is* a twentieth of an ounce of

gold. In short, it would be just as simple then to keep the price of the composite package of 300 commodities invariable (however widely its constituents might vary among themselves) as it is now to keep the price of gold invariable. The price of that composite would always be a dollar, just as to-day the price of gold is always $18.60 an ounce, and just as, under an egg standard, the price of a dozen eggs would always be a dollar, and just as, with an alloy of gold and silver, the price of that amalgam would be constant, however much its constituents might vary relatively to one another. Even this composite of goods-dollar might not be ideal and constitute an "absolute" standard of value, but no one will deny that it would be a great practical improvement over our present standard—just as great an improvement as it was, for instance, to adopt for the unit of length the length of the king's arm, instead of the girth of the chieftain of the tribe.

Perhaps some scornful reader is now eager to point out how inconvenient, not to say grotesque, such a dollar would be if it were in circulation or were used for export or import. With its thirty pounds of coal, it is far too heavy to carry; with its coal and wood, it is far too bulky for the pocket; its solitary egg would spoil. Gold is to be preferred because it is imperishable, easily divisible, easily portable, and easily salable. And these are precisely the attributes which led us to select gold; and not, as some people mistakenly assume, any attribute of stability.

By all means let us keep the metal gold for the good attributes it has—portability, durability, divisibility, salability—but let us correct its instability, so that one dollar of it will at all times buy approximately that composite basketful of goods. Money to-day has two great functions. It is a medium of exchange and it is a standard of value. Gold was chosen because it was a good medium, not because it was a good standard.

The argument that gold became money because it was thought to be a good standard of value is, so far as I can find out, an unfounded myth. Indeed, when it came into use as money, there were no index numbers and there was therefore no way of testing its stability or instability; and finally at that time there was not much need and not much thought of a standard of value, for the good and sufficient reason that there were few, if any, time contracts, such as promissory notes, mortgages, or bonds. Almost all bargains were struck and settled on the spot. When a man was about to make a cash purchase it was immaterial to him what the monetary unit was.

But to-day if a man buys an article and promises to pay for it in three months the case is different. When the time for payment arrives it is very important for him to know whether the "dollar" is the same as was contemplated when the agreement was made. With our network of long-time contracts, running months, years, generations, or even centuries, including hundreds of billions of dollars in

promises to pay money—promissory notes, mortgages, debentures, railway bonds, government bonds, leases, etc.—the function of a standard of value, that is, a standard of deferred payments, has grown to be perhaps the more important of the two functions of money.

In short, because our ancestors found a good medium of exchange, we now find ourselves saddled with a bad standard of value. The problem before us is to retain gold as a good medium and yet to make it into a good standard; not to abandon the gold standard but to rectify it; not to rid ourselves of the gold dollar but to adapt it to the composite or goods-dollar. Under the plan here to be presented, gold is retained as the ultimate means of redemption. There is essentially the same mechanism by which gold freely enters or leaves the circulation. But under this plan the gold dollar will become a standard of value instead of a standard of weight. We now have a gold standard that is forever fluctuating. It is a gold standard with the "standard" left out! The proposal is really to put the standard into the gold standard—to standardize the dollar.

The method of rectifying the gold standard consists in suitably varying the weight of the gold dollar. The gold dollar is now fixed in weight and therefore variable in purchasing power. What we need is a gold dollar fixed in purchasing power and therefore variable in weight. I do not think that

any sane man, whether or not he accepts the theory of money which I accept, will deny that the weight of gold in a dollar has a great deal to do with its purchasing power. Other things being equal, more gold will buy more goods. Therefore more gold than 25.8 grains will buy more goods than 25.8 grains will buy. If to-day the dollar, instead of being 25.8 grains, or about one-twentieth of an ounce, of gold, were an ounce or a pound or a ton of gold, it would surely buy more than it does now, which is the same thing as saying that the price level would be lower than it is now.

A Mexican gold dollar weighs about half as much as ours and has less purchasing power. Certain South American dollars are still lighter and have correspondingly less purchasing power. A friend reports that in Colombia he paid fifteen dollars for a shoe-shine. Now, if Mexico should adopt the same dollar that we have and that Canada has, no one could doubt that its purchasing power would rise—that is, the price level in Mexico would fall. If the heavier or the lighter the gold dollar the more or the less will be its purchasing power, it follows that if we add new grains of gold to the dollar just fast enough to compensate for the loss in the purchasing power of each grain, or, vice versa, take away gold to compensate for a gain, we shall have a fully "compensated dollar," a stationary instead of a fluctuating dollar, when judged by its purchasing power.

But how, it will be asked, is it possible, in practice, to change the weight of the gold dollar? The feat is certainly not impossible, for it has often been accomplished. We ourselves have changed the weight of our gold dollar twice—once in 1834, when the gold in the dollar was reduced seven per cent, and again in 1837, when it was increased one tenth of one per cent. If we can change it once a century, we can change it once a month!

And if we use paper representatives of gold exclusively, instead of some paper and some gold coins, these monthly changes in the weight of the gold dollar can be made even more easily than could the occasional changes which history records. In actual fact, gold now circulates almost entirely through "yellowbacks," or gold certificates. The gold itself, often not in the form of coins at all but of "bar gold," lies in the government vaults. A bar of gold nine tenths fine weighing 25,800 grains is just as properly to be called one thousand dollars of 25.8 grains each as if that bar were cut up into a hundred separate pieces and each were stamped into a ten-dollar gold piece. The thousand gold dollars already exist embedded or welded together in the gold bar, while the right of ownership in them circulates in the form of paper "yellowbacks." Since, then, even to-day most of our gold dollars do their circulating in the form of paper, what inconvenience would it cause if the only circulation of gold were in the form of paper? Most of the people in Eng-

land who before the war carried gold in their pockets by preference have already been weaned from the habit; and most of the few Americans, in California and Oregon, who still do so could soon be weaned from it in the same way.

It would, therefore, be little more than expressing in law an existing custom if gold coins were abolished altogether. For simplicity, we shall assume that this has been done. When, therefore, I speak of changing, from time to time, the weight of the gold dollar, the reader need not conjure up visions of repeated recoinage or visions of gold eagles of various weights jangling together in confusion in the market place. Let him rather banish gold coins entirely from his mind and think of a dollar as simply a number of grains of gold bullion in the vaults of the United States Treasury, that number changing from time to time but always definite and specific at any time, and let him remember that in actual circulation this gold bullion is represented by yellowbacks.

The abolition of gold coin would make no material change in the present situation. Gold would, just as at present, be brought by the gold miner to the mint, or the assay office, or other government depository, and he would, just as at present, receive paper tokens or yellowbacks in return. This sale of gold to the Government for yellowbacks—that is, this free deposit—is really the essence of the so-called "free coinage." It is thus that gold gets into

circulation, through its representative, the yellowback.

Moreover, the gold in the Treasury would serve, just as at present, for the redemption of the gold certificates. The jeweler or gold exporter would, just as at present, obtain gold for his purposes by exchanging yellowbacks for gold at the Treasury. Every dollar of gold whose corresponding yellowback was thus taken out of circulation would reappear as bullion in the arts or be added to foreign circulation. The process would, therefore, be virtually a flow of gold dollars, of fixed value but variable weight, from the circulation into the arts or abroad. Such exchange is the ultimate "redemption" of gold certificates. The usual object of redemption is either the export or melting of gold. The Scandinavian banks keep some of their gold abroad all the time, being allowed to count such gold as reserve. When someone presents notes to them in order to get gold to send to London, he simply receives the ownership of some of the gold already in London.

Thus free coinage, or rather free deposit, and free redemption, would go on substantially as at present, the one increasing and the other decreasing the volume of bullion certificates—that is, the virtual gold in circulation. The essential mechanism of our gold-standard system may be pictured as a lake of gold in circulation in the form of yellowbacks fed by "free coinage," or deposit by miners, and drained

by free redemption, or withdrawal by jewelers and exporters.

If gold thus circulated only in the form of paper representatives, it would evidently be possible to vary at will the weight of the gold dollar without any such annoyance or complication as would arise from the existence of coins. The Government would simply vary the quantity of gold bullion which it would exchange for a paper dollar—the quantity it would give or take at a given time. As readily as a grocer can vary the amount of sugar he will give for a dollar, the Government could vary the amount of gold it would give or take for a dollar. To-day the Government will give 25.8 grains of gold bullion to the jeweler or exporter for each dollar of certificates he pays in; next month it might give 26 grains or only 24 grains. These respective increases or decreases would, of course, be made for the purpose of compensating the decreases or increases in the purchasing power of the dollar.

But, it will now be asked, what criterion is to guide the Government in making these changes in the dollar's weight? Am I proposing that some government official should be authorized to mark the dollar up or down according to his own caprice? Most certainly not. A definite and simple criterion for the required adjustments is at hand—the now familiar "index number" of prices. The Bureau of Labor Statistics, which now publishes an index number, the Bureau of Standards, or other suitable gov-

ernment office, would be required to publish this number at certain stated intervals, say monthly. That is, each month the bureau would calculate from current market prices how much would have to be paid for our composite basket of goods. This figure it would publish and proclaim; and this figure would then afford the needed official sanction to the Secretary of the Treasury to change the rating of the gold dollar—that is, to change the amount of gold which the mint would give or take for a gold certificate, and thus increase or diminish the purchasing power of that certificate. The certificate would always be equal to the gold dollar; and the gold dollar would be kept equal to the goods-dollar, which is the ultimate standard. If, for instance, the index number representing the current price of our composite basket of goods is found to be one per cent above the ideal par—that is, above the one dollar price it had at first—this fact will indicate that the purchasing power of the dollar has gone down; and this fact will be the signal and authorization for an increase of one per cent in the weight of the gold dollar. For what is added to the weight of the gold dollar will be automatically registered in the purchasing power of its circulating certificate.

If you ask how I know that this one per cent increase in the weight of the gold dollar is just sufficient to drive the index number (or price of our composite basket of goods) back to par (or one dollar), I answer that I don't know, any more than I

know, when the steering wheel of an automobile is turned, that it will prove to have been turned just enough and not too much. Many things may interfere in a month. But if the correction is not enough, or if it is too much, the index number next month will tell the story. Absolutely perfect correction is impossible, but any imperfection will reappear at the next date for adjustment and so cannot escape ultimate correction.

Suppose, for instance, that next month the index number is found to remain unchanged at 101. Then the dollar is at once loaded an additional one per cent. And if, next month, the index number is, let us say, 100½ (that is, one half of one per cent above par), the one half of one per cent will call for a third addition to the dollar's weight—this time one half of one per cent. And so, as long as the index number persists in staying even a little above par, the dollar will continue to be loaded each month, until, if necessary, it weighs an ounce—or a ton, for that matter. But, of course, long before it can become so heavy, the additional weight will become sufficient; so that the index number will be pushed back to par—that is, the circulating certificate will have its purchasing power restored.

Or suppose the index number falls below par, say one per cent below. This fact will indicate that the purchasing power of one dollar has gone up. Accordingly, the gold dollar will be reduced in weight one per cent, and each month that the index

number remains below par, the now too heavy dollar will be unloaded and the purchasing power of the certificate brought down to par. Thus by ballast thrown overboard or taken on, our index number is kept from wandering far from the proper level—that is, from the price of one dollar per composite basket of goods. In short, the adjustment, like all human adjustments, takes place "by trial and error." There is always a slight deviation, but this is always in process of being corrected. The steering wheel keeps the monetary automobile, not exactly in the straight line marked out, but always near it on one side or the other, so that its deviation will always afford the criterion needed for steering it back.

It does not matter in the least what the cause or causes of deviation may be. They may be connected with gold or bank credit or anything else. The deviation, no matter how caused, would bring a counterbalancing change in the gold dollar's weight, and the change in that weight would go on every month as long as the deviation in the index number continued. The result is that the price level would oscillate only slightly. Instead of great price convulsions, such as we find throughout history, the index number would run, say 101, 100½, 101, 100, 102, 101½, 100, 98, 99, 99, 99½, 100, etc., seldom getting off the line more than one or two per cent.

The process of correcting the dollar has just been likened to steering an automobile. It might better

be compared to the automatic regulation of the "governor" on a steam engine, or to the method of securing a "compensated" pendulum. Every aberration brings its own correction. And so we conform our gold dollar, approximately, to the composite or goods-dollar.

It is assumed that the banking system is such as to maintain redemption and to keep the volume of credit deposits and notes more or less proportional to the gold base (for a bad banking system recklessly inflating or deflating credit could almost set at naught any stabilization of the gold base). Each dollar of bank notes and other fiduciary money would, as now, be redeemable in a dollar of yellowbacks, and therefore such paper money would be, exactly as now, at parity with yellowbacks. Each dollar of these yellowbacks, or gold-dollar certificates, would, in turn, be redeemable at the government offices in a gold-bullion dollar and would, therefore, always be of equal value therewith; and finally, each dollar of gold bullion would, by periodical adjustment of its weight through an index number, be kept very nearly equivalent to the imaginary basket of goods described as the composite dollar.

All dollars, bank notes, etc., yellowbacks, and gold bullion would be absolutely equivalent to one another and would be approximately equivalent to the composite, or goods-dollar. We would then be substantially rid of a fluctuating price level, with

its long trains of bad consequences. The monetary yardstick would at last be standardized.

To complete the statement of the plan, one proviso needs still to be mentioned. To avoid speculation in gold at the expense of the Government, a small fee, corresponding to what used to be called "brassage," should be charged to depositors of gold, and no single change in the dollar's weight should exceed that fee.

This is a technical detail and, with other technical points, such as the status of the reserve behind the gold-dollar certificates, the initial par of the index number, the selection and revision of the items making up the composite dollar, the possible retention of gold coins and coinage, etc., need not here be entered upon. What has been said is meant—and is enough—to show that we have the power, if we will but use it, to stabilize the purchasing power of the dollar and, therefore, to stabilize also the general level of prices.

The plan, then, as above set forth, is, in brief:

1. To abolish gold coins and to convert our present gold certificates into "gold-dollar certificates," entitling the holder to dollars of gold bullion of such weight as may be officially declared from time to time.

2. To retain the virtual "free coinage"—that is, deposit—of gold and the free redemption of gold-dollar certificates.

3. To designate an ideal composite goods-dollar

consisting of a representative assortment of commodities, worth a dollar at the outset, and to establish an index number for recording, at stated intervals, the market price of this composite dollar in terms of the gold dollar.

4. To adjust the weight of the gold-bullion dollar at stated intervals, each adjustment to be proportioned to the recorded deviation of the index number from par.

5. To impose a small "brassage" fee not to exceed any one change in the gold dollar's weight.

The plan should, of course, start off near the price level actually existing immediately before its adoption. There would, then, be no shock in adopting the goods-dollar as our unit by varying the weight of gold bullion to represent that goods-dollar. In fact, there would be less shock than when we adopted standard time and changed our watches accordingly. Just as the time engagements of the whole world have been modified and simplified by the shift of watches from local to standard time, or more recently, by the shift to "daylight saving," so the money engagements of commerce would all be put on a true standard without jar or confusion.

Substantially the same kinds of money would be passed from hand to hand as before the system was adopted, and the ordinary man would be quite unaware of any change, as unconscious, in fact, of the operation of the new system as he is now unconscious of the operation of the present system, or as

were the inhabitants of India when the "gold exchange" standard went into force a quarter of a century ago.

The crux of the plan lies in the steering rule by which the index number regulates the dollar's weight. Its significance is that to keep the gold dollar from shrinking in value we make it grow in weight, thus recognizing that a depreciated dollar is a short-weight dollar; and, reversely, to keep the dollar from growing in value we make it shrink in weight, thus recognizing that an appreciated dollar is an overweight dollar. Or again, since a heavier or lighter dollar simply means a lowered or raised price of gold, we may say that to keep the level of prices of other things from rising or falling we make the price of gold itself fall and rise.

I have briefly described what has come to be known as my plan for stabilizing the dollar. It should be said, however, that before I proposed this plan others (e. g., Simon Newcomb, the astronomer, Aneurin Williams, M. P., and D. J. Tinnes of North Dakota) had proposed substantially the same. Moreover, this plan is not the only possible one nor the only one which has been proposed. The chief reason I have advocated it rather than some other is that it seems to require the least break with tradition. But the important thing is not the adoption of this or any other particular plan, but the adoption of *some* plan which will effectually minimize the inflation and deflation which now curse this world.

Another plan, which might almost be called the antithesis of mine, is, instead of regulating the gold base and trusting to a good banking system to keep the credit superstructure in proper adjustment to that base, to regulate the credit superstructure exclusively, letting the gold base take care of itself. As shown in my book "Stabilizing the Dollar," this plan is good as far as it goes, but it has distinct limitations beyond which it would fail to function. The same may be said of an intermediate plan suggested by Professor Cassel of Sweden and in substance recommended by the Genoa Conference. This proposal is simply to adjust and readjust the distribution of gold among the great world banks, impounding it to avoid the founding of credit on it when it is superabundant and allotting it for wider distribution when it is scarce.

The Allied economic experts at the Genoa Conference recommended:

"The essential requisite for the economic reconstruction of Europe is the achievement by each country of stability in value of its currency."

They then proceeded to outline the specific steps which should immediately be taken, adding:

"These steps might by themselves suffice to establish the gold standard, but its successful maintenance would be materially promoted not only by the proposed association of central banks but by an international convention to be adopted at a suitable time. The purpose of the convention would be to

centralize and to coördinate the demand for gold and so *to avoid wide fluctuations in the purchasing power of gold which might otherwise result from the simultaneous and conflicting efforts of a number of countries to secure metallic reserves.* It is suggested that the convention should embody some means of economizing the use of gold by maintaining reserves in the form of foreign balances, such, for example, as a gold exchange standard or an international clearing system. . . ."

The Finance Commission named the Bank of England as the proper authority to call an international monetary convention and emphasized the importance of securing the coöperation of the United States in the world effort to stabilize currency.

In the United States a "Stable Money League" has been formed to study all plans for stabilization and to oppose all attempts toward destabilization, either inflation or deflation, of our currency, according to its statement:

"Pledged to no plan or measure save the open-minded examination of all well-considered proposals, we urge upon Congress and our fellow citizens the high necessity of such action. We cordially invite all who are interested, producers and consumers, economists and bankers, to join with us in the study of the question involved, with a view to concerted action upon some feasible and generally acceptable plan."

The study and choice of plans is in the hands of a Research Council consisting of leading economists and experts in this field.

Several bills have been introduced into Congress to study or effect stabilization, by Representatives Husted, Dallinger, and Goldsborough.

The world is now looking to us, as never before, for leadership. It is our golden opportunity to set world standards. If the United States will adopt a really stable standard of value, it seems certain that other nations, as fast as they can straighten out their affairs, resume specie payments, and secure, again, stable pars of exchange, will follow our example. After gold and silver fell apart in 1873, the nations, one after another, adopted the common standard of gold, following England's lead; and now, after the falling asunder of all the pars of international exchange from the World War, the new order will probably be set by whatever nation first seizes the opportunity and takes the lead.

There is a further reason why the present is a golden opportunity. This is that we do not now have to consider the objection which existed before the war to one nation alone standardizing the dollar, namely, that it would embarrass our foreign trade by breaking existing pars of exchange. The pars have been broken already—even with England. And most of these pars will probably remain broken for several decades to come, just as ours did, because of the Civil War, for the period of 1861–78, or as the English did, because of the Napoleonic wars, for the period of 1801–21. It will be a surprise if before the middle of the twentieth century stable pars are

again reached, except by England, Japan, and the smaller countries which were neutral during the war. Certainly we cannot expect, in foreseeable time, any restoration of the old pars by France, Italy, Germany, Austria, or Russia. Standardizing our own dollar will, therefore, not break many pars of exchange but, on the contrary, will help foreign nations to make them again. And broken pars of exchange are of relatively slight consequence in any case.

There are few who adhere so literally to the theory of technical obligation of contract as to urge that the pre-war franc, lire, mark, or rouble should now be restored. England long ago gave up the practice, although sanctioned technically, of imprisonment for debt, because it was found to be not practical nor really fair play. Even less practical and less fair would be a demand for a return to the old pars of the money of continental Europe. Only bankruptcy and ruin could follow such an insane requirement. It would mean deflating the French price level to forty per cent of what it now is, the Italian to twenty-five per cent, the German to one per cent, the Austrian to less than one per cent, and the Russian to less than one per cent of one per cent. This would mean multiplying the burden of the debts in France two-and-a-half-fold, in Italy fourfold, in Germany a hundredfold, in Austria over one hundredfold, and in Russia over a millionfold. This would bankrupt the people and the governments alike. And

even this drastic deflation would only bring us back to gold and not to the pre-war *purchasing power* of gold.

We must put aside technicalities and face the facts. The only solution, at once just and practicable, is, as recognized in the Genoa Conference, that the currencies of continental Europe shall be stabilized at greatly reduced valuations as compared with their pre-war values. The sooner this is recognized, the sooner will the trade, finance, and industry of the world function more normally. The exact point at which the reduction should be set is, of course, different in different countries and cannot be stated in figures until after a careful concrete, individual study of each nation's situation.

To recapitulate, the most promising program for European reconstruction seems to be as follows:

First, let the nations disarm, balance their budgets, and stop inflating.

Second, let each country decide in its own way what the gold content of its monetary unit shall be, whether it be the pre-war figure or not.

Third, after this unit has been chosen let it be put into effect, not at first through the costly process of introducing great gold reserves and gold redemption, but by the device of the gold exchange standard as it was introduced by England for India a quarter of a century ago. This device makes the currency virtually redeemable, not in gold at home but in exchange on gold abroad. By it every paper

money country could virtually become a gold country, simply by maintaining its rate of exchange on a gold country substantially fixed. France and Italy would buy and sell bills of exchange on, say, New York at fixed rates.

Fourth, let the great State Banks, under international agreement, recognize their obligations to regulate promptly the rate of interest, whether up or down, in such a way as at least never greatly to upset the level of prices and so upset business.

By these four measures virtually the whole world would soon be on a common gold standard and we would have some guaranty against excessive credit cycles disturbing the purchasing power of money.

Fifth and finally, let the metallic base itself be stabilized, whether by my method or some other. Without this last step, complete stabilization would still be lacking.

No one realizes more keenly than I the obstacles to this or any other sane program aiming at stabilization. While these problems are frequently discussed by academic experts and occasionally by statesmen, the mass of the public, including the bankers and even the merchants, are not greatly interested—chiefly because they do not yet understand the dire need of stability and partly because they do not think stabilization has any chance of realization in the immediate future. In the meantime, price convulsions go on and out of them come class antagonisms and proposals which aim at re-

inflation or further deflation. Ford, Edison, and Senator Ladd are among the most distinguished proponents of inflationary schemes to remedy the present situation.

Yet each swing of the pendulum of prices brings the need of stabilization home to an increasing number of earnest and public-spirited citizens and generates new sentiment for stabilization. The growing use of index numbers by measuring inflation and deflation tends to increase the perception of their reality. Another reminder consists in the modern trade barometers of Babson, Brookmire, the American Institute of Finance, the Alexander Hamilton Institute, the Standard Statistics Company, and the Harvard Committee of Economic Research.

Another new and wholesome tendency of public opinion is to stop blindly blaming "the profiteers" for rising prices, and "the money lenders of Wall Street" for falling prices and, instead, to blame the Government for "printing too much money" and so raising prices, or for "restricting credit," and so reducing prices. Both kinds of wrath have recently been directed at the Governments of England, France, and even the United States, while the former kind is still directed against the German, Austrian, and other governments which are still inflating their currencies. In the United States the farmers and the former Comptroller of the Currency have accused the luckless Federal Reserve Board for the responsibility for deflation, calling forth voluble ex-

planations. This placing of the responsibility more nearly where it belongs is a significant indication of the growing appreciation by the public of the influences affecting the level of prices. When the public can, as a matter of course, require of the Government a stable price level and the Government can "deliver the goods," some way of accomplishing that end will be found.

Furthermore, that money needs to be stabilized, is tacitly but eloquently proclaimed by the world-wide efforts to correct it by adjusting contracts, especially wage contracts, by means of an index number. In Great Britain alone over three million working people have their pay thus corrected for changes in the value of money.

Our national Constitution forbids the states to impair the obligation of contracts, and the national Government itself is supposed to conform to the principle of this prohibition (with certain exceptions, such as bankruptcy laws). But with our variable yardstick of commerce the conformity is, at best, to the letter, not the spirit, because the letter of the contract and the law fix the obligation in gold by weight, but the contracting parties are not concerned with what a gold dollar weighs; usually in fact they do not even know that a dollar is only a weight unit. The meeting of their minds is on the basis of what a dollar is worth in commerce, and they make little allowance for any change in that worth.

Thus, under the very protection of the constitutional provision mentioned, one of the parties to the contract always robs the other to some extent. This social pocket-picking, unconscious but real, would, if our monetary yardstick were regulated, cease; and with it would cease also discontent, jealousy, and suspicion in so far as these grow out of that species of social injustice. Crises and depressions of trade would be reduced in their intensity, if not rendered impossible. The fundamental reason for much unsound speculation would be taken away.

From all standpoints, then, we in the United States now have the greatest opportunity of history to set and regulate the monetary standards of the world. If we do not do this, if we do not provide a really scientific remedy, if we take the ground that we must simply drift with the tides of gold and credit, that we are helpless to do anything to rectify or prevent in the future the great social injustices which history warns us will surely come, as between creditor and debtor, wage earner and employer, salaried man and profit-taker, we shall be simply fertilizing the soil of public opinion for a dangerous radicalism. Then surely some demagogue will flourish and offer an ill-considered remedy which will sweep everything before it. We shall then not see a scientific study of a technical problem, with a willingness of all parties to have an equitable settlement, but outraged justice will call forth revengeful effort and we shall witness a great selfish class

struggle. Discontent, unrest, suspicion, class hatred, violence, charlatanism will follow, and even if a fairly satisfactory settlement ever grows out of such unpromising soil, there will remain a bitterness embedded in it which will not disappear for generations.

The more the evidence in the case is studied, the deeper will grow the public conviction that our shifting dollar is responsible for colossal social wrongs and is all the more at fault because these wrongs are usually attributed to other causes.

When, at last, those who can apply the remedy realize that our dollar robs first one set of people and then another, to the tune of billions of dollars a year, confounding business calculations and convulsing trade, stirring up discontent, fanning the flames of class hatred, perverting politics, and, all the time, keeping out of sight and unsuspected, action will follow and we shall secure a boon for all future generations, a true standard for contracts, a stabilized dollar.

CHAPTER III

TRANSPORTATION AND THE BUSINESS CYCLE[1]

Frank Haigh Dixon

In a highly developed industrial country like the United States, transportation is all-pervasive. In fact, it has been one of the more important influences in making the country what it is. For industry in any large sense is dependent for its very existence upon adequacy of transportation facilities. Without means of transfer and exchange, geographical division of labor would be impossible. The wheels of modern industry would cease to turn. Investment, employment, production, markets, sales, consumption, all would be reduced to very modest proportions. It is one of the necessary links in the chain of processes between the original producer

[1] Limitations of space have prevented the presentation of statistical data that would show in detail the relation of the railroad industry to general business at various stages of the business cycle—statistics of unemployment, of revenues and expenses, of purchases, of loans and the sales of securities. For material of this character the reader is referred to a report now appearing under the auspices of the National Bureau of Economic Research entitled, "Unemployment and Business Cycles." Chapter X is a study of the railroad situation by Dr. Julius H. Parmelee, and is called "The Long Range Planning of Railway Purchases and Construction."

of the raw material and the remote consumer of the finished product, and it is a link that reappears at many points in the chain. While the service of transportation is embodied in various agencies, the chief of them, to which we shall in this discussion confine our attention, is the railroad. In comparison with it, the other agencies—electric railways, water and highway carriers—are of relatively small significance when the traffic of the country as a whole is considered.

Even a cursory examination of a railroad classification reveals the extraordinary diversity and extent of the transportation function. No article of commerce is too insignificant or too cheap to be deprived of the privilege of transfer by rail. For the year 1919, the latest for which statistics are available, the distribution of traffic among the different groups of commodities was as follows:

REVENUE FREIGHT TONNAGE BY CLASSES OF COMMODITIES

Class I Carriers

Year ended December 31, 1919

	Per cent of total tonnage originating on the road
Products of agriculture	10.49
Animals, and products of	3.24
Products of mines	53.82
Products of forests	8.58
Manufactures	15.40
Miscellaneous commodities in carloads	3.79
Less than carload commodities not distributed above	4.68
	100.00

These statistics convey no information concerning the profitableness of the various kinds of traffic, because they indicate nothing as to rates charged or distances hauled. But they do roughly show in terms of weight the relative service performed for the different industries by the railroad carrier. They likewise serve to enforce an obvious conclusion, that while industry is dependent upon transportation for its existence, the business of transportation could not prosper except for the industries that it serves. The relation of the two is one of mutual dependence.

But the figures suggest another conclusion that is not so obvious, a conclusion that would stand out more clearly were the data for the individual railroads analyzed. The long-time prosperity of the railroad depends not alone upon the fact that traffic of some sort is available to it, but that the traffic is not all of the same sort. Just to the degree that the carrier is dependent upon a single industry for its earnings, is its business rendered speculative and its prosperity endangered. The wider the range of service of any railroad, the less likely is it to be dragged down in times of restricted activity. Every farsighted railroad manager seeks to diversify his traffic and eliminate the alternating periods of stagnation and congestion. The railroad that leads the most venturesome life is the one whose earnings are derived from the business of a single industry, and particularly an industry with a limited life like that

of a timber tract or a mine. Sooner or later its reason for existence vanishes.

The fact that industry is distributed geographically and that alternations of prosperity and depression occur in different industries at different times, requires that in any study of railroad prosperity the location of the particular road or group of roads shall be taken into account. This is not merely the case when some specific industry has met with disaster due to local causes, but also when the depression is nation-wide or world-wide. For even then the effects do not appear contemporaneously in all industries. Neither, be it noted, are the effects upon the railroad of a depression in an industry necessarily immediate or at once directly proportional to the decline in production. Shipment may continue on a normal basis while manufacturing volume is being reduced or it may decline less rapidly.[1] But in the long run it must meet the fate of the industry or industries that provide the traffic. And the converse is also true. A depreciated, inefficient or bankrupt railroad system seriously affects the prosperity of a community. A prosperous railroad system can contribute much to its success. How much railroads should be expected to do in restoring and sustaining and developing the prosperity of the sections that they serve, will be discussed later.

The close dependence of industry upon transportation frequently leads industries indiscriminately to

[1] *Harvard Review of Economic Statistics*, April, 1922, p. 55.

charge ills that befall them to the carriers and to demand from their railroads unreasonable sacrifices. This phenomenon is an important cause of political action. Industrial groups press their transportation claims upon the Washington Administration, and upon the Interstate Commerce Commission quite in the orthodox manner with which we have so long been familiar in the framing of tariff bills.

But not only is the railroad of vital importance as a transporting agency. Its influence as a buyer on the market is large and in some lines well-nigh dominating. Its appearance and disappearance in the market are events of profound significance to the business world. Only the roughest sort of approximations have been made of the aggregate purchases of the roads in their relation to total output. But such estimates as we have will give an impression of the significant part played by the railroad as a purchaser. Omitting all indirect purchases which are made in the form of manufactured or finished commodities, the carriers, it is estimated, purchase normally between fifty and sixty per cent of the steel rail output and from twenty-five to thirty per cent of the total iron and steel output, including rail. They buy about thirty per cent of the coal output and from ten to fifteen per cent of the lumber cut. Leaving out of account new construction, the carriers have very definite annual requirements that must be met, either by current purchases, or by larger purchases at intervals to cover deferred main-

tenance. What the present annual requirements of the roads actually are can be judged by a few figures showing the expenditures of the railroads in 1920—a year in which the roads were attempting to restore their properties to the normal standard, but in which for various reasons, the expenditures were not excessive. Carriers constituting about ninety-three per cent of the mileage of Class I roads[1] in 1920 laid 2,262,000 tons of new and second-hand rail and 289,000,000 ties, and applied 19,000,000 yards of ballast. They consumed in road service 114,000,000 tons of coal and 1,627,000,000 gallons of fuel oil. During the years 1912 to 1916, which were fairly normal years for capital expenditure, the railroads of the country installed annually an average of 2,615 new locomotives, 2,687 passenger cars, 117,144 freight cars and 11,862 cars for company service. With the exception of agriculture, the railroads employ more men than any other industry in the country. Their payroll in 1920 included over 2,000,000 names.

Having emphasized the all-pervasive character of the transportation industry and the mutual dependence of railroad and general business upon one another, it will be helpful to analyze somewhat in detail the nature of the most important of the transportation agencies, the railroad, and compare its financial policy with that of other large industrial undertakings. The railroad business is frequently

[1] Those having annual operating revenues of over $1,000,000.

referred to as one of increasing returns, or of diminishing cost. This principle, not peculiar to the railroad industry, but present there in more striking form than in most undertakings of its size, has reference to the fact that once the plant necessary for the creation of the product has been constructed, business can be taken on up to the full utilization of capacity at a steadily declining cost per unit of output. This is due to the fact that the plant must be provided in advance for a prospective business, that the burden of overhead is felt from the moment the investment is made, and does not vary with the business done so long as the investment remains undisturbed. Accordingly, every additional increment of business that pays anything above the out-of-pocket costs incurred in handling it, contributes something to this fixed expense that must be liquidated in any event. Hence the more business, while plant capacity is available, the less the cost per unit of business done.

This same principle extends into the various functions connected with operation. A staff must be continuously employed for administration and supervisory duties, whether the business be large or small. Track must be kept in repair at least up to the standard of safety, whether trains are running in large numbers or not. A minimum number of cars must be out of shop and in running condition at all times. Station and train forces must be maintained at a definite minimum to meet the public require-

ments for continuous, although possibly infrequent, service. In other words, while there are opportunities for variation in expenditures with variation in amount of business offered, this variation is definitely restricted, and a certain minimum expenditure must go on irrespective of traffic handled. This amounts in a way to a fixed charge, which is distributed over more and more business as traffic expands.

But these conditions operate with equal disadvantage when traffic is declining. A huge plant in which a constant expense for maintenance and operation is the prevailing characteristic, must necessarily suffer a decline in net revenue that outruns the decline in gross. Adjustment of operating expenses in times of depression is practicable to a certain extent. Direct saving in transportation costs can be made through reduction in service. Maintenance expenditures can to a degree be postponed. But all this takes time. Note, for example, that the high point of operating revenues for the year 1920 was reached in October with a total of $642,000,000. In that month the operating ratio was eighty-two per cent. In February, 1921, the operating revenues had fallen to $406,000,000 and the operating ratio had jumped to ninety-five per cent. It was not until June that the ratio was down again to eighty-two per cent. But this ratio was eventually reached without a recovery of the earnings of the previous October, the June operating revenue being only $55,000,000

above that of February. The situation had been taken in hand and drastic retrenchment in expenses inaugurated.

This necessity for the maintenance of a minimum standard of operating service and of condition of roadway and equipment, is due to the public nature of the industry and to its essential character. It is so vital to the public welfare that it cannot be permitted to cease, neither can it be allowed to deteriorate to a point where service is inefficient and unsafe. Hence the financial policy of a railroad corporation is not dictated purely by self-interest, and cannot be shaped at a time of crisis to meet the immediate personal desires of the stock and bond holders. It is hampered by the restraints springing from its public relationship. A purely private business is free to adopt as rigid a policy of contraction as its personal interests dictate. Depriving the public of the use of its product even in so necessary a commodity as coal for example, appears to be a question of policy to be determined by the corporation without consideration of the needs or desires of consumers. Just to the extent that we are coming to place a commodity in the class of the absolutely essential does the industry producing such commodity partake of a public nature and lose to some degree its freedom of action. Coal is approaching this status. Railroad transportation has always occupied it, and in discussing the possible contribution of the railroad industry to the solution or mitigation of the

problem of the business cycle, this fact should be kept clearly in mind. The railroad must provide, whether or no, a minimum of service. If other industries shut down, it loses its traffic and its revenue. But it must still carry the burden of its fixed charges and the operating expenses of a minimum service. Its only alternative is to abandon its charter.

This overpowering burden of fixed plant in the railroad business would be evident, could a satisfactory comparison be made between the railroads and industrial corporations that would bring out the relation of gross earnings to investment. Such a comparison would show the comparative flexibility of capital in the two types of business. But unfortunately no such statistical comparison can be presented, because of the paucity and vagueness of information concerning most of the industrials, the diversity in the use of accounting terms, and the consequent non-comparability of the data. However, certain general conclusions are evident from the study of such balance sheets and income accounts as are available. Most larger industrials in normal times show a total of gross sales in excess of the book value of fixed plant, and in some cases many times in excess. The Baldwin Locomotive Works, for example, had in 1918 a plant account of $30,000,000 and gross sales of $123,000,000. The corresponding figures for 1920 were $28,000,000 and $74,000,000. The General Electric Company had a plant account in 1918 of $44,000,000 and gross revenues of

$217,000,000. In 1920 the figures were $67,000,000 and $276,000,000.

In contrast with these figures, the railroads of the country showed for 1917 a total investment in road and equipment of nearly $20,000,000,000 and an annual operating revenue of a little over $4,000,000,000 or about twenty per cent. The figures of later years are disturbed by the war situation, but the conclusion from them could not be different. The Pennsylvania Railroad shows for 1920 an investment of $772,000,000 and total operating revenues of $230,000,000. The conclusion from these rough comparisons is fairly clear, that while the average large industrial turns over its capital once and perhaps several times in the year, the railroad consumes several years in the process, varying from three to five or more. Of course, the explanation lies in the nature of the two kinds of undertaking. In the first place, as already noted, the capital outlay for a railroad, the object of which is to cover distance, is enormous. In the second place, the railroad is a service industry. It has no capital tied up in raw materials. Its receipts cover the sale of service only, while the receipts of the industrial cover not alone the service involved in manufacture, but the cost of the raw material and any other costs involved in earlier processes. This fact is of controlling force in considering the flexibility of a railroad's financial policy and its ability to trim its sails to weather an approaching storm. Squeezed between the pres-

sure of public obligation to continue operation and the predominating influence of a huge fixed plant, its discretionary power is seriously limited. When the storm approaches, it must draw its mantle a little closer about its shivering form and pray that the blow will be mild and of short duration.

But not only is the railroad burdened with an extraordinarily large fixed plant, the securities issued to the public, the proceeds of which are largely invested in this plant, are to a far too great degree in the form of contractual as distinguished from contingent obligations. This is strikingly illustrated by a recent compilation [1] in which the net worth of railroads and industrial corporations is compared. The following table is derived from this compilation.

RELATION OF CAPITAL SECURITIES TO NET WORTH
RAILROADS AND INDUSTRIALS: 1911, 1916, 1920

		Net Worth in millions	*Funded Debt* in millions	*Per cent of Net Worth*	*Capital Stock* in millions	*Per Cent of Net Worth*	*Surplus* in millions	*Per cent of Net Worth*
1911	Railroads	$17,492	$9,280	53 05	$6,833	39.07	$1,379	7.88
	Industrials	7,617	1,486	19.50	5,142	67.50	990	13.00
1916	Railroads	18,641	9,487	50.89	7,060	37 87	2,095	11.24
	Industrials	13,401	1,802	13.44	8,310	62.02	3,288	24.54
1920	Railroads	20,603	9,700	47.08	7,261	35.24	3,642	17.68
	Industrials	20,190	2,360	11.69	11,340	56.17	6,490	32.14

Net worth, it should be explained, means total assets less total liabilities excluding securities (funded debt and capital stock). In the case of the railroads this means practically the investment

[1] Muller's Analysis of Financial Statistics, Washington, 1921.

in road and equipment, together with other investments and net current assets. From the standpoint of future railroad financing, there is grave significance in the fact that of the total net worth of the industrial group in 1920, less than 12 per cent was represented by funded debt and over 56 per cent by stock, whereas in the railroad group a net worth of almost exactly the same amount was represented by liabilities of which 47 per cent were bonds and only 35 per cent stock. Moreover, this situation has not improved during the ten years here covered. If we put on one side the surplus, which has increased in the railroad accounts from 7.88 per cent to 17.68 per cent of the net worth, and if we consider only total securities outstanding, we find that the relation of bonds to stock has remained practically stationary, the bonds representing about 57 per cent of total capital securities and the stock 43 per cent.

This situation means, of course, that a disproportionate part of the net return from railroad service is ear-marked for interest on bonds. It means a corresponding reduction of the surplus available for dividends on stock, for reinvestment in the plant in the form of additions and betterments, for reserves of one kind and another—that type of financing that indicates wise foresight and inspires confidence in the investment community. As these compulsory payments increase in amount and proportion, the credit of the road is likely to decline and further financing is thereby rendered more difficult. The

more bonds and notes are resorted to for financing purposes as distinct from stocks, the more the corporation is likely to be compelled to use this method in the future. As credit declines, lenders demand increased security. Just why the railroads find themselves in this unfortunate situation cannot be fully explained without going into a detailed financial history, covering at least two decades and probably three. Hence the various influences can only be suggested here.

In the first place, the relative permanence of the industry has modified the significance of the debt conception. Removal of debt through short-time financing or sinking funds is of vital importance in a terminable undertaking, or one of rapidly exhausting assets. But in the transportation field where the life of the corporation is indefinite, where its earnings are reasonably regular and stable, it has become to a large degree a matter purely of business policy whether capital should be raised in the form of bonds or of stock. And bonds have the advantage of appealing to a type of investor who is willing to accept a relatively low rate of income on his investment in return for an assurance of safety. This gives the corporation the opportunity to "trade on the equity," to secure the capital at a low rate and turn it over at a higher one.

In the second place, bonded debt has been increased proportionately as a result of the consolidation movement which began to take definite form in

the nineties of the last century. In that period the collateral trust bond formed a most useful instrument. It apparently made it possible for a road with credit to buy another without the use of any cash, and oftentimes to its very great profit.

But the reason for the relative increase in bonded debt upon which the carriers themselves would lay the greatest stress is the decline in recent years in the credit standing of the roads with the investment public, thus compelling them to resort to the only form of financing that could be successfully accomplished. This decline in credit standing, the carriers attribute to the falling off in earnings as a result of the niggardliness of the Interstate Commerce Commission. This is a bitterly contested question which it is unnecessary to settle here. The Commission, interpreting its rate-making function strictly, was perhaps not as generous as it ought to have been, but this is a conclusion after the fact. Whether its action was at the time a wise one is another matter. The Commission itself, in its Five Per Cent Case of 1914, which involved thirty-five carriers in Official Classification territory, held after reviewing their financial condition for the years 1900 to 1913, that the rate of return as a whole was "smaller than is demanded in the interest of both the general public and the railroads." During that period the ratio of net operating income to property investment reached as high as 6 per cent in only three years, 1906, 1907, and 1910, and the

average return for the fourteen years was 5.64 per cent. For the period 1908 to 1916 inclusive, the return on property investment for all carriers of the country excluding switching and terminal companies varied from 4.12 per cent in 1914 to 5.90 in 1916. During these years investments of new capital were being made, but not to the degree necessary to keep the plant abreast of the public need. The increase in investment over the previous year for each of the years 1909 to 1916 and the return on investment for each year is shown in the following table.

RAILROAD PROPERTY INVESTMENT, EXCLUDING SWITCHING AND TERMINAL COMPANIES[1]

Year	*Increase in property investment over previous year*	*Return on investment for the year, per cent*
1909	$395,000,000	5.38
1910	949,000,000	5.68
1911	1,055,000,000	4.92
1912	393,000,000	4.69
1913	584,000,000	5.01
1914	565,000,000	4.12
1915	284,000,000	4.18
1916	247,000,000	5.90

[1] Annual Report, Interstate Commerce Commission, 1918, p. 80.

It will be seen that while 1909 and 1910 were years of satisfactory capital building, there was a marked falling off thereafter up to the time that the roads were taken over by the Government. These facts should be kept in mind in connection with the later discussion of the adequacy of the present rate of return assured to the roads by the Transportation Act of 1920.

But the burden of lack of credit should not be left to be shouldered by the Commission and charged solely to its lack of courage and judgment. The fact that the amendments of 1910 to the Interstate Commerce Act greatly strengthened the Commission's power over rate making was sufficient, so soon as the public was convinced that the Commission would make use of this power, to divert timid capital away from the railroad industry. Rate control had not meant much to the investor up to this time. But the fact that the Commission now could actually control the earnings of the roads and proposed to do so in the public interest, aroused sufficient uncertainty as to the outcome to affect the railroad capital market. This was coincident with the appearance of many attractive opportunities for capital in the industrial field. Railroads, in other words, were meeting with more competition in the buying of capital than they had been accustomed to meet in earlier years, and were therefore compelled to couch their offers in more attractive terms. Finally, there is little doubt that the carriers were handicapped in the investment market by the revelations of mismanagement of several railroad properties that had come from Commission investigations. For the speculative element introduced into the situation by their disclosures, the railroads had to pay with a contract more secure than would otherwise have been necessary.

There are still other peculiarities of the rail-

road business that must be taken into account in attempting to estimate the part that the industry can play in the mitigation of the evils of the business cycle. Generally speaking, the business is conducted on a cash basis. This is almost absolutely the case in passenger transportation. The passenger must purchase his ticket before he boards the train or he must pay a cash fare to the conductor. Credit is extended in passenger business only to the United States Government. Railroads accept government travel orders in exchange for railroad and Pullman tickets and collect these orders later from the Government. The extent of credit that the Government enjoys appears to be entirely at its own disposal. The dilatoriness of the Government in paying its obligations is notorious. Of course cash fares do not mean that every individual railroad receives the cash before performing the passenger service. In the case of through passenger business, the initial carrier collects the entire charge, both for its own portion of the journey and for that of the connecting lines. This collection is reported to the roads concerned on the first of the following month. Interline settlements are made in from thirty to forty-five days from the sale of the ticket. From the point of view of intercorporate relations, this is a credit transaction, but from the standpoint of the railroads as a whole in their relations to the public, it is business on a strictly cash basis.

In the handling of freight traffic, the cash method

has not been so strictly followed. Of course, the same procedure in the matter of interline settlement prevails as in the passenger business, except that in freight transportation charges are usually collected at destination and it is the initial and intermediate carriers that must wait for their money. But the bills are audited and settlement made between the different carriers in from thirty to forty-five days after the actual shipment is made and delivered. These transactions are inter-company affairs and are cash transactions from the standpoint of the public.

The credit transaction appears in the relation of shipper or consignee and carrier. While much of the freight business has always been conducted on a cash basis, with the collection of charges upon the delivery of the goods to the consignee, or in the case of prepaid freight, upon the acceptance of the goods by the carrier, yet it has been a widely prevailing custom to grant to large shippers very long periods of credit, which often gave them the opportunity to pay freight charges out of the proceeds of the sale of the goods. While sometimes these accounts accumulated merely as a matter of convenience, frequently the credit extensions were the deliberate result of competitive conditions, and were in the nature of rebates. During federal operation, cash payment of freight bills was instituted as a government policy, and this was incorporated into law in the Act of 1920. Freight bills must now be paid

upon delivery of freight, except as the Commission may modify this procedure to meet technical difficulties. Under certain safeguards, the Commission has allowed a period of ninety-six hours. It is significant that the new provision requiring cash payment of freight bills specifically excludes from its operation the United States Government and all states and political subdivisions thereof. Congress had no intention apparently of accelerating the pace now set by government financial agencies or of doing anything to improve the conditions under which the creditors of the Government suffer from its notorious procrastination. A large part of the present accounts receivable of the railroads consists of government debts growing out of federal control.

Just what proportion of the business of the railroads would be properly regarded as credit business cannot be stated with any exactness. It is a matter of opinion based on experience, and the experience of the various carriers is quite different. Estimates of the amount of freight traffic delivered to consignee in advance of payment of transportation charges, vary from fifty to seventy-five per cent, bills being settled weekly, semi-monthly, and monthly, according to the agreement with the shipper. The length of this period has presumably been very greatly contracted since the passage of the recent legislation just described. But even assuming that the old practices still to a large extent prevail, the significant point is that in comparison with all other industries

except those, like the railroad, that deal in service rather than goods, the various public utilities, the railroad is a cash business. The practice of carrying customers' accounts for long periods of time does not exist.

While the railroad, being a service industry, has no raw material problem as has the industrial, it is nevertheless a very large purchaser of materials and supplies. It must maintain its plant up to the operating standard established by its management. This has always been done directly by the railroad until recently, when the acute situation following the return of the roads from federal operation led some carriers to contract for the repair of their locomotives and cars and in some cases for the maintenance of way. But in many of these instances, the materials and supplies were provided by the carrier. To the extent that the roads construct new equipment in their own shops or build new mileage directly, they are large purchasers of materials. The supplies necessary for operation, such as coal, oil, and waste, the supplies for office and administrative use, bring the roads into the market as buyers on a large scale.

These contracts are, as a rule, made on a cash basis. Railroads do not create obligations in the purchase of materials and supplies, although the contracts may run for as long as a year. Contracts for rails are usually made at the beginning of the year for the number of tons needed to meet the

year's program, and deliveries are made as required or at the convenience of the mills. Purchasing agents strive to have as small an amount of materials on hand as is consistent with safety. This amount will vary with the conditions of the market, the distance from the source of supplies, the season of the year, the character of the material, and any disturbing factors likely to have an influence upon market conditions. For example, so far as possible, the coal supply of such railroads as can profit by the practice is bought so as to be shipped through the lake ports, which means that the amount on hand will be greater in the fall than in the spring. Processes that require a long time, like the creosoting of ties, necessitate accumulation of stocks in advance. A threatened coal strike results in heavy purchase and storage, whereas under ordinary conditions probably few roads carry more than a fifteen-day supply.

But in spite of these variations, the general impression created by railroad practice is that the industry is a day-by-day, hand-to-mouth purchaser for cash. Upon receipt of the invoices, vouchers are usually prepared at once, and are held up by the treasurer only when funds are low. Fluctuation in the item of audited accounts and wages payable as it appears in the corporation's balance sheet is due solely to the condition of its cash.

What the average amount of cash is on the average railroad can of course be computed, but it has

no significance whatever in relation to the actual operations of the carrier, for it is subject to sudden and extended fluctuation and is dependent upon a financial policy that is not necessarily stable or continuous for any length of time. The railroads in their dealings with the Government, in connection with the return of their properties, took the position that a minimum cash working capital is one half a month's operating expenses. This position brings out sharply the purely cash nature of the business. No industrial concern, buying raw materials and turning them into a finished product for a market in which credit must be allowed, could long keep out of bankruptcy on a margin of cash as slight as this. But even the railroads do not intend to keep so close to the margin, and those that are in a sufficiently favorable position to do so are carrying cash balances many times in excess of the minimum. For the years 1912 to 1916, a fairly normal period, the Class I railroads showed cash on hand at the end of the fiscal year varying from $309,000,000 in 1915 to $441,000,000 in 1912 and averaging for the period about $390,000,000. This average cash balance amounted to nearly thirteen per cent of the average of the annual operating revenues and to nearly nineteen per cent of the operating expenses. The average monthly operating expense for the period was $173,000,000, which gives a cash balance more than double the operating expense requirement. To be sure, the cash fund is for a given

date and is not an average for the year. Moreover, it probably includes results of transactions other than those of transportation. But with all due allowance for disturbing influences, the conclusion must be that the cash carried by the railroads is ample.

Transactions appearing on the books of the railroads in the form of accounts, bills, and notes have to do usually with matters other than those concerned with transportation itself. On the side of receivables, the Government regularly appears as debtor on mail account. There are also the amounts due in settlement from the express company. Sometimes a subsidiary company is advanced money which is represented by notes, and these must often be carried indefinitely until permanent financing can be undertaken. On the liability side of the balance sheet, the items can usually be accounted for by construction work in progress, or the purchase of additional property for which permanent financing has not yet been arranged. In short, then, the railroad business can be classified as a cash business. It relies for the payment of its bills at presentation upon the steady inflow of cash that comes from its sales of service. If a panic threatens there is no problem of reducing inventories, shutting down on customers' credits, cleaning up notes at the banks. The railroad knows that it will be a direct sufferer if the storm breaks, but so long as its income is sufficient to pay its minimum operating expense and

the interest on its debt when it falls due, it will be able to weather it. There is no situation in the railroad industry comparable to that in the industrial field where long-time credit is extended, nor does the revenue of the carrier have to be depleted by discounts offered to induce cash settlements.

We have to do, then, with an industry more directly and more completely in contact with every economic activity than any other. Its prosperity and that of industry in general are mutually dependent. It is a large purchaser of supplies in the market, and one of the largest employers of labor. It must perform a minimum of service whether this service is or is not profitable, and the nature of the industry is such that adjustment of operating expense to meet declining earnings is difficult and slow. On the other hand, its transactions are almost wholly cash and the problems of credit concern it only as they relate to its funded obligations which, however, are unfortunately far larger proportionately than they should be.

Through the fact that it serves all industry, it has been expected to offset disaster in one line of activity with prosperity in another and really to suffer only when the disaster becomes universal. Yet the margin of safety has in recent years become so narrow that it acts as a barrier to any flexibility in financial policy or any large-scale planning for future development. Only large net earnings steadily sustained will overcome this disability and

such earnings the railroads have not enjoyed in recent years.

Can and should this industry contribute to a greater stabilization of business in general? Is it not reasonable to expect that a business with a book investment of over twenty billions of dollars, employing nearly two million men, touching every part of the United States and every industrial activity, should be able to exert some influence in the direction of mitigating the alternations of business prosperity and adversity?

At present the railroad follows in its policy of contraction and expansion the general business trend. Only occasionally, if at all, does it take the lead in preparing for a falling off in business or in anticipating a recovery. When a slump in business takes place, railroad management takes steps to meet it which are influenced by the character of the declining traffic, the probable seriousness of the decline, and the season of the year. If there has been a suspension in the production of commodities handled in large lots, in car and train loads, such as the products of the fundamental industries, freight trains are withdrawn, together with their crews, and a corresponding number of men of the switching crews. This diminishes the consumption of fuel, lubricants, and miscellaneous train supplies, and makes possible the reduction of forces in the department where these supplies are handled. Then

there follows a reduction in yard clerks and car inspectors, in tower and station telegraph service, and a decrease in the labor force required at transfer points. The extent to which train service can be curtailed depends upon the extent to which the slump can be directly allocated to specific industries to which the railroad is giving car- and train-load service. If the depression is widely prevalent and affects buyers generally, so that all types of traffic are declining in quantity, the opportunity to make direct cuts in service is not so easy. A certain minimum of transportation must be provided in any event.

There usually follows in order the reduction in repair work in shops and roundhouses, which manifests itself first in a reduction of the working hours per week, and then in a gradual restriction of the repair work to what are known as "running repairs," and a postponement of the heavier maintenance requirements until a more prosperous season. This postponement may extend from a few days to months, depending upon the financial and industrial conditions. The management is free at any time to reduce maintenance work on the right of way, but in practice the extent of curtailment would depend upon the season of the year. Generally speaking, it is not considered wise to curtail tie and rail installation in the spring or too narrowly to restrict the repair of right of way following the winter season. In the fall, it is not desirable to

reduce the work on locomotives to a point below the repair of current wear and tear.

In a period of this sort, the activities of the purchasing department are of course curtailed, and office forces are reduced throughout the service. But it is the practice of the ablest executives not only not to reduce supervisory forces, but to increase them, as the greatest economy in such periods of declining traffic can usually be accomplished by vigilant oversight and a checking of waste in every direction. Reduction in numbers of the labor force does not directly affect the number employed in train service. Under the rules of the labor organizations, men are not discharged, but are assigned a limited amount of mileage per month. The existing work is divided up among the men. This is to a certain extent true with other classes of labor, for example, the clerical forces in the shops. When after a period of depression, a recovery in business is in sight, the reverse of the process just described takes place. If the depression has been prolonged, maintenance long deferred, imperative capital investment postponed, railroad confidence in a return of prosperity will be expressed in orders for new cars and locomotives, a reopening of shops, a calling back of the shop forces, and a putting of cars and locomotives in shops for the anticipated traffic.

There are those who argue that railroad buying initiates the whole movement of recovery, and who have been urging for many months during the

present depression that railroads should get into the market in order to "start something." There is no scientific basis for any such view. It is the belief of those who have given the problem the closest study [1] that the relation between stocks, consumption, and production of goods is responsible for business revival, and that sometimes one industry and sometimes another is the first to revive after a period of depression. Railroad buying simply coöperates in speeding up the revival.

It must be clear from this brief analysis that railroad business goes with the current, that it has done little if anything to check decline—in fact, its methods have served to accelerate it—and that it becomes an active factor in the market only when business has already begun to revive. Because of its function as a service industry, it is a victim of declining business. Must it remain in this helpless state, or can it construct a policy which in helping itself will at the same time assist in promoting a greater stabilization of business in general? It may be replied at once that no such far-sighted planning will be fruitful that does not contemplate a financial reserve of sufficient size to permit of flexibility in large-scale projects of construction and maintenance. The railroads must have funds beyond their day-to-day requirements. How may such funds be obtained?

[1] See publications of Harvard Committee on Economic Research.

An answer to this question may be sought in two directions. In operation the industry is private. In spite of the degree to which regulation has advanced, there is still much room for the exercise of independent judgment and initiative in the solution of operating problems. From the other standpoint, however, the industry is but an arm of the Government. It is tied hand and foot. It cannot make a rate, it can neither raise nor lower one, without the permission of the regulating agency. Under the rulings of the Labor Board, it cannot fix a wage to which the employees object or refuse to agree, without prior permission of the Board. The Government becomes in very fact a partner in the industry, and is at least jointly responsible for the quantity of net earnings turned out as a result of railroad service.

To put this two-sided problem in another way, net earnings may be enhanced either by increasing gross earnings or by reducing operating expenses. For increased gross earnings we must look to the Government alone. To secure reduced operating expenses the railroads, except in the matter of wage rates, may do much on their own account. While the public and private aspects of the problem are often closely associated, there are some directions in which the railroads clearly should take the initiative. These relate to projects that will tend to stabilize the industry on the operating side and thus reduce operating expense. Moreover, it must

be evident that anything that promotes more efficient and more stable operation in an industry of the size and pervasiveness of the railroad will have a profound influence upon general business stability. Congestion, embargoes, shortage of equipment are immensely disturbing to business. Traffic should be able to move without awareness of the transportation factor. If transportation is functioning satisfactorily, it will not intrude itself.

These projects all center in plans for a greater degree of coöperation among the individual railroads. Notwithstanding the unquestioned gains to be acquired from competition in railroad service, which unquestionably should be preserved, there is waste in the present methods of operation that is well recognized. In fact, the public conviction of the uneconomic character of railroad operation springing from the multitude of separate corporations is growing so steadily that, unless the carriers tackle the problem themselves with thoroughness and determination, the opportunity to do so is more than likely to be taken from them. When earnings were abundant, wastes were of less importance to the railroad executive than they are to-day. With the existing narrow margin between receipts and expenses, it is reasonable to expect that railroad executives will take this problem seriously. Thus far they have shown little interest in joint undertakings. Their effort has been to develop *esprit de corps* on the individual railroad system, and they

have not concerned themselves with the national aspect of the problem. Suggestions have been made from time to time looking to greater coöperation between carriers. These have been disregarded or they have been thrust aside as impractical, or a mild imitation of the plan, already in operation, has been deemed a sufficient answer.

The National Association of Owners of Railroad Securities organized during the war as the mouthpiece of bondholders in matters of railroad policy has taken hold vigorously of this problem of cooperation on a national scale, and is working out a program which it hopes that the railroads, through public pressure, if not voluntarily, will eventually adopt. It is not feasible to discuss this program in detail, but a brief mention of a few of the projects will make clear what the Association has in mind. First, there is the pooling of freight cars. Briefly, the plan provides for the federal incorporation of the National Railway Service Corporation to be used in financing, distributing, inspecting, rebuilding, and repairing interchange freight cars. It is to be a clearing house for the settlement of *per diem* and repair charges. It will undertake rebuilding and general repairs in the most economical locality. It will standardize car design and contract for the building of new cars. It will finance the purchase of new equipment by individual railroads through contracts of conditional sale or lease. Contemplated savings are to arise from centralized

direction of car movement, under which unnecessary empty mileage will be avoided, reduction in switching movement accomplished, and the periodic phenomena of car shortages and surpluses mitigated. Centralized purchase of new equipment will reduce first cost through the introduction of standardization, and the more even distribution of orders and deliveries throughout the year and among the various equipment builders. The employment of equipment obligations through the national agency will save in interest rates. Savings will be effected through the more systematized allocation of repair work, through the more consistent and regular retirement of worn-out equipment, and the substitution therefor of the larger and more efficient facilities.

So much for the claims of the more enthusiastic advocates of the general national pool. While railroad executives are giving the matter some attention, their attitude in general is hostile to the plan just outlined. Let us review their arguments briefly. Take first the problem of economic distribution. Is there the economic waste in empty mileage that is claimed? Railroad executives insist that empty mileage does exist but that car pooling would not eliminate it, that it is due to light loading and unbalanced traffic, and that no device of car distribution can control this situation, which is industrial and fundamental. So far as periods of acute car shortage are concerned, they are now taken care of by legislation. The Interstate Commerce Commission

has power, wherever shortage of equipment, congestion of traffic, or other emergency requiring immediate action exists, to take charge of the situation and make such orders as will best promote the public interest.

Again, there is serious objection from the railroad standpoint to the plan of centralized supervision of repairs. President Warfield of the National Association of Owners of Railroad Securities has drawn a touching picture of the life of a railroad car which spends sixty per cent of its time away from home, with no one responsible for its care or habitation. Its financial guardian is often a trust company which, while undertaking supervision, carefully guards its liability with legal verbiage. When the car is damaged on a foreign line, it is patched up just enough to make it acceptable to the connecting carrier. It arrives at home bandaged with adhesive plaster or with its arm in a sling, or is carried home because it cannot travel on its own legs. Its life is shortened by lack of adequate hospital treatment or the application of preventive medicine, and sometimes treatment is charged for by doctors who never administered it.

The truth of this pitiful tale is to a certain extent admitted by the railroads, but they insist that just to the extent that pooling becomes nationalized and the sense of family relationship between car and carrier is weakened, does this problem of repairs become more serious. In fact, the period of federal

control when all cars were "communized" and no one of them had any parents, but every one was a wandering orphan upon the face of the earth, was just the time when the grade of repair work reached its lowest stage. Concentration of repairs in fewer shops must take into account that other processes are going on concurrently and that the shops have been organized to perform a large number of different operations. An immense amount of reorganization would be necessary. And in any case it is not clear that national management of such shops would be as efficient as local.

As for standardization, the railroads have through their Master Car Builders Association been for over two decades alive to the importance of uniform car design, and progress has been steadily made. In the matter of car wheels, brakes, couplers, sill steps, ladders, and in the more fundamental problems of length and height the American Railway Association, stimulated by federal statutes in the interest of safety, has progressed toward uniform practice. Railroad executives take direct issue with the claim that saving in interest can be made through centralized financing. It is insisted that centralized purchase occasions centralized sale and that all the advantage of a competitive selling market is lost.

It is admitted by the railroads that without outside pressure complete coöperation can never be attained. For this reason the plan of the Association of Owners of Railroad Securities deserves seri-

ous consideration. If it cannot be adopted in its entirety, there is much to be said for a pooling plan which would set up a "flying squadron" of cars, contributed to a central pool by the various participating carriers, that could be used to meet emergencies in various sections of the country. This would provide for the peak load on each road and relieve the individual carrier from the necessity of making provision out of its own capital to meet its more extreme necessities.

It has not been the purpose of this somewhat detailed analysis of the pooling problem to reach a final solution. Rather has it been to illustrate the type of operating question upon which railroad managements should be at work, with the aim of widening the differential between gross revenue and operating expense. Moreover, the operating problem is not confined to the pooling of cars. The utilization of equipment by carriers and shippers is, from the efficiency standpoint, far short of ideal. If it be true, as railroad executives estimate, that a mile additional per car per day automatically adds 100,000 cars to the supply of railroad equipment, and if an addition to the load per car of one ton adds 80,000 cars to the supply, the problem of efficient operation is not only of vital importance to the railroads themselves but equally to the public.

Another problem of importance from the standpoint of economical and efficient operation is that of the joint use of terminal facilities. There is a

certain degree of coöperation in this regard among the railroads of the country, but it has largely been confined to points of relative unimportance from the competitive standpoint—frequently at intermediate stations and connections—and hence it has contributed little to the solution of the problem of congestion, or to the problem of waste in switching and other service resulting from excessive competition.

Steadily increasing costs of handling in the large terminals have threatened to absorb in many cases most of the revenue from the line haul. Expansion of terminal facilities is imperatively demanded. Yet the cost of expansion, because of location in congested population centers, is well-nigh prohibitive. The competitive basis upon which these terminals were originally constructed has resulted in disunity, scattered individual terminal plants, and a maximum of necessary switching, with all the expense of transfer, interchange, car delay, and duplication of facilities. According to a recent report on Joint Terminals at Chicago by the Board of Economics and Engineering of the National Association of Owners of Railroad Securities, the city of Chicago has 16 independent belt or industrial lines, 80 or more freight interchange points, 184 freight houses, 120 freight yards, and 65 locomotive terminals. In estimating the importance of an efficient use of this huge terminal property, it is of significance to note that the Board estimates the value of the railroad investment in Chicago at one billion dollars. Ac-

cording to the Board, what is needed in any railroad terminal is a minimum of train miles and switching movements; delivery of passengers and freight at convenient points with a minimum of transfer service; an unobstructed road for through traffic; and a minimum of investment in properties and facilities.

Joint ownership of such facilities is not essential. What is imperative is some sort of coöperative administration that will eliminate the wastes of the present competitive process. That competition in service should be preserved so long as we maintain private operation is almost self-evident. Yet there is much of this competition at terminals which cannot be justified from the public standpoint. Carriers should take the lead in a survey of these conditions and in projects for promoting greater coöperation. They can no longer plead that they are prevented from coöperating by statutory prohibitions. The whole spirit of the Transportation Act of 1920 is toward the promotion of greater coöperation among carriers. The Commission has power to require the use of terminals by carriers other than the owners, and it is specifically provided in case of consolidation that the carriers shall be relieved from the penalties of the Anti-Trust Act.

It will be of interest to inquire at this point what the effect upon the carriers and the business community is likely to be from the consolidation plan now under consideration by the Commission. This

plan, which the Commission has been required by law to perfect, is at present in a tentative stage pending hearings at which the carriers are to present their objections. It throws the railroads of the country into nineteen systems. These systems must be so constructed that competition will be preserved and existing routes and channels of trade maintained. Moreover, they are to earn under uniform charges a rate of return substantially the same upon the value of their respective properties after consolidation. The scheme is voluntary, the only restraint upon the freedom of the roads being that, if they consolidate at all, they must conform to the plan approved by the Commission. Whether consolidation can be made effective without being made compulsory is doubtful, but we are not here concerned with that aspect. We are interested in knowing what influence consolidation, if accomplished, would have in stabilizing business. In the first place, it would doubtless serve to stabilize the operation of the weaker roads, because, through absorption into stronger systems, they would participate in their prosperity and would be relieved from the nightmare of threatened bankruptcy. To the extent that this proved true, it would mean a contribution toward the stability of business throughout the community served by the road that had been strengthened through absorption. It would mean larger and more constant expenditure for operation and maintenance, steadier employment, and more efficient service for

the community along the line. Then there are unquestionably economies in operation that would arise as soon as consolidation was in full swing. Roundabout wasteful transportation would be done away with, because the incentive thereto would be gone. Traffic would seek the most direct route to destination, and thus the burden of unnecessary transportation would be lifted from the shoulders of the business community. It is the same problem in another form that the advocates of centralized pooling of cars are endeavoring to solve.

But there is waste not only in the competitive relations of railroads to each other. There is waste and instability in the competition of railroads with other transportation agencies like the steamship and the motor-truck. While the public in the end will assume control of this situation, yet the railroads can do much in assisting the public in a thorough survey of the capacities and functions of the different competitive agencies and their proper place in any comprehensive and statesmanlike plan. It will not stabilize business to permit the present haphazard, unscientific competition to continue unchecked.

One other situation to which the carriers in their pursuit of stability and prosperity must give serious attention is that which concerns their labor. To examine exhaustively the merits of this question would carry us too far aside from the purpose of this chapter. But it can be fairly asserted that, with a

few exceptions on individual roads, the handling of labor relations in the railroad industry has been haphazard, superficial, and opportunist. There has been no sincere effort to reach fundamental causes and to attempt any thoroughgoing cure. Railroads, generally speaking, have accepted the challenge best exemplified in the attitude of Mr. Gompers, that the labor problem is one to be settled by methods of warfare and that the reasonable wage is what you can get by main force. The Railroad Labor Board has contributed nothing since its creation to the solution of this problem. It has been controlled by the statute that created it, which laid down certain considerations that were to be taken into account in passing upon wage controversies. These considerations it has conscientiously applied. Nevertheless, its decisions have created the definite impression that they were based upon expediency. It is quite possible that this is as near to a solution as human beings will ever be able to reach. But until this has become a demonstrated fact, it is the duty of railroad executives to keep at work on the problem. There is to-day far less interest in the fundamentals of the labor problem among railroad executives than in many industries of considerably less extent and public importance.

The problem raised by the shop crafts and others in the recent controversy before the Labor Board, that no consideration has been given to the question of a fair standard of living, is one that requires

far more study on the part of railroads and arbitration bodies than it has yet received. Is it possible to solve the wage problem by establishing a scientific base, with a cost of living bonus that rises and falls automatically with price movements? If such a plan were feasible, it could be a powerful influence toward the stabilization of the railroad industry and indirectly of general business.

Moreover, the establishment of a scientific base for wage rates, assuming such to be possible, would dispose of the much debated question whether labor should be liquidated in a time of declining earnings. Labor costs constitute from fifty to sixty per cent of the operating expenses of the railroads. A falling off in traffic, immediately reflected in a decline in gross earnings, magnifies the operating expense account with its burden of wage cost. It has been the persistent claim of the railroads, in answer to requests for reduction in rates during the recent depression, that no rates could be reduced until wages came down. Should the wage earner make the supreme sacrifice in order that traffic may move? Clearly not. He is entitled to his reasonable wage, whatever that may be, irrespective of the railroads' earnings. It is therefore evident that the problem as to what constitutes a reasonable wage should be the first to be attacked.

To what extent have railroad executives studied the problem of a larger coöperation of labor in management? Local participation in the problems of the

individual railroad would develop loyalty and efficiency to a degree now sadly lacking. If labor were given the opportunity in a responsible manner to advise with reference to fundamental problems of management and its views were accepted seriously and incorporated into the policy of the road, there would develop that spirit of proprietorship which is the best antidote for labor troubles. It may be that compulsory arbitration of railroad labor disputes will have to come. It ought to come if there is no other way of avoiding interruptions to transportation. But there may be a solution less drastic. Railroad managements and labor leaders are falling far short of their public obligations in not giving more thorough study to the fundamentals of the labor problem.

We have considered some of the ways in which the railroads may promote efficiency in operation and stability in earnings and thus create for themselves a reserve as a basis for long-time planning of expenditures. We now turn to the obligation of the public as expressed in its regulating policy. It may be said at once that the legislation of 1920 contains more of promise for stable earnings and the devising of long-time plans for betterment and extension than any legislation thus far enacted. It specifically imposes upon the Interstate Commerce Commission the obligation to see to it that the roads, divided into groups, have a fair return upon the aggregate

value of the property of the group, and it requires the Commission so to fix rates that the roads will earn by groups as nearly as possible this fair return. The Commission is made responsible for the honesty and efficiency of management, for reasonable expenditures for maintenance. It must take account of the transportation needs of the country and the necessity for enlarging facilities, in order to provide the people with adequate transportation. Congress could not have been more specific in placing in the hands of the Commission the power to build up on the railroads the financial reserves necessary for stability and for continuity in far-sighted policies of expenditure. In many other ways which cannot here be discussed, was the Commission given authority to eliminate the speculative and disruptive elements in railroad policy—power to pass upon issues of securities, to approve of pooling contracts, to prepare a plan of consolidation, to resolve the conflicts of state jurisdiction, to prescribe minimum rates. But the significant thing is the power to prescribe a level of rates that will earn a specific return considered by the Commission to be fair in relation to the investment in the business.

Therefore it rests with the Commission, at least in the first instance, to determine what is a fair return, whether it is one that just pays operating expenses and fixed charges, or whether it is one that provides the surplus essential to flexibility in financial management. Congress has guarded against

what it thought might be an excessive return for individual roads by permitting a road which earns in excess of six per cent on its investment to keep only fifty per cent of the excess. Whether this will work out to give to the roads that essential surplus upon which reserves can be erected can only be determined by experiment. It will work out differently with different roads, depending upon their relative efficiency of management and the relative claims of the security owners. It unquestionably restricts the opportunities of the more prosperous roads, whether unduly or not is a question that cannot be answered by any mathematical demonstration. But this "recapture" plan has a favorable side also from the standpoint of stabilization of business. The fund thus created is to be used by the Government in the interest of the weaker roads, either in direct loans or through the lease to them of equipment. Whatever assistance is thus granted will be a steadying influence not only upon the roads themselves, but also upon the communities through which they operate. It may well be that from the public standpoint the gains thus accomplished will offset the losses suffered by the more prosperous roads through the conscription of their income. It should be further noted that the roads that earn in excess of six per cent cannot use this excess immediately to create reserves for improvements. They are required to set up a reserve of five per cent of their property value for dividends, interest and rentals,

and only such income as exceeds this five per cent is at their unhampered disposal. At present the "fair" rate of return established by the Commission which the roads by groups are entitled to earn upon the aggregate value of their property, is five and three quarters per cent. Whether this is generous enough to permit the railroads to be a factor in the stabilization of business cannot yet be determined. After their novel war experience the carriers are not yet back to normal. But it is of significance in attempting to answer the specific question which is the subject of this chapter, that the Commission is required by law to keep in mind the transportation needs of the country. This must mean something beyond the earnings necessary to meet operating expenses and interest on bonds.

Granted sufficient earnings to permit of a reasonable flexibility in financial policy and confident planning for a reasonable time ahead, what can the railroads do to mitigate the fluctuations of the business cycle? They can exert a powerful influence in the direction of stabilizing production directly in the line of their own demands. Moreover, their influence will be felt in many other lines, because by stabilizing employment in railroads and in railroad equipment industries, employees will continue to buy and raw material industries will be sustained. The influence of an industry with the pay roll and the purchasing power of the railroads is nation-wide.

There is much evidence that railroad executives would welcome the opportunity both individually and collectively to work out long-time plans for maintenance and betterment work. In fact, the financial history of the better managed roads reveals their attitude. It used to be a fundamental principle of railroad policy to keep plant and equipment definitely ahead of traffic, to reinvest a definite proportion of earnings in betterments. That policy largely came to an end with more rigid regulation, but the policy then pursued shows that no campaign of education is necessary to convince executives of its soundness. They are now restrained only by lack of capital and lack of assurance of continued financial support. Plans could be and would be prepared providing for a program year after year that would continue without regard for the general business situation, if the public was willing to stand behind this program and assure to the roads the earnings in prosperous years that would permit the managements to be indifferent to the declines of the years of depression. For there is no way of preventing altogether the periodical decline in business. It must be discounted by adequate preparation.

Such a program of continuous expenditure would act as a mitigating force. For the fluctuations in the numbers of the employed on the railroads would vary to a far less degree than now and all industries dependent upon the purchases of the railroad employees would to that degree be stabilized. More-

over, the entire field of industries from which the railroads purchase supplies, lumber, coal, iron and steel, locomotives, cars and the multitude of equipment parts, tools, stationery and hosts of others, would be directly affected and the influence would promptly spread through their employees to other industries.

If the public believes that it should not be charged rates that will permit of rebuilding and extension out of earnings, it will nevertheless sooner or later be compelled to admit that if private operation is to continue, earnings must be sufficient, if not to provide for betterments, at least to give a reserve sufficient to attract capital from the investment market. For otherwise service will decline and the public will suffer far more from depreciation in service than it ever suffered from too high rates.

From two sources then, are to come the net earnings needed to give the railroads financial stability—the development of greater efficiency in operation, and a policy of price-fixing that leaves something in fat years to offset the inevitable lean years that follow. But granted sufficient earnings to command the attention and interest of the investor, which means not so much sufficient earnings in any one year as a recognized public policy that assures adequate earnings over a series of years, there is no reason why the call of the railroads upon the capital market should not be fairly constant. Railroad securities would be in demand and the pur-

chaser to a greater extent than at present would hold what he bought. In the capital market, therefore, as well as in the market for raw and manufactured goods, the influence of this industry would be in the direction of stabilization.

There is another phase of the relation of transportation to business which has been of absorbing interest during the period of deflation of prices, and that is the burden of the freight transportation charge upon the specific commodity. The question has been most sharply defined in discussion concerning the agricultural industry, for by an unhappy concatenation of events, the extraordinary decline in agricultural prices was coincident with the increase in railroad rates.

We have presented to us the very difficult problem, is it the business of the railroad to mitigate the misfortunes of the various industries by adjustment of the rates? The most generally accepted theory of railroad rates is that of charging what the traffic will bear, which is a sound theory when confined to the relation of commodities to each other. If this theory were alone controlling, the railroad would be expected to adjust the rates to meet the immediate situation in the industry affected, but it should in turn be permitted in times of prosperity to raise the rates coincident with the increased ability of the traffic to bear these rates, and should enjoy whatever income was obtainable therefrom. But this does not fit with our present conception of

the financial privileges of the railroad. Our announced policy is that the railroad is entitled to a fair return on the value of its property and *no more*. If then its return is to be limited at all times to a figure adjusted to the value of the property employed in transportation, is the industry in position freely to meet the cries for help that come now from one section of the country and now from another?

To the self-interest of the railroads can be left in part the solution of this problem under the watchful guidance of the Commission. If a reduction in rates will promote an increase in revenue, presumably the railroads will make such reduction. If such reduction accrues to industry alone and results in a direct loss to the carrier, the question whether it should be enforced becomes a complicated one for a regulating body. Will this amount to a discrimination against other commodities? Will the carrier be deprived of a fair return? But the point that it is desired to enforce here is that the railroad industry should not necessarily be looked to for relief from the temporary embarrassment that some specific industry may be suffering. The railroad is not a philanthropic enterprise, neither is it to the degree that such a benevolent policy would imply, a public agency. It is not reasonable to expect the railroad to play the part of a *deus ex machina*. Railroads may properly be asked to contribute their proportion to a readjustment among the prices of raw material, labor, finished commodities, and

transportation and selling costs. In a depression such as that through which we have just passed, there can be no adequate recovery without genuine coöperation of the various factors participating in industry. But railroads should not enjoy the privilege of making the entire sacrifice in the interest of revival.

This suggests a plan which might well receive the attention and study of railroad traffic officials and regulating bodies alike, that of graded rates designed to meet more promptly and accurately the fluctuations in market demand for commodities. Such adjustments would in large part apply seasonally, corresponding, for example, to the seasonal price quotations now common in the coal industry, with the purpose of smoothing out the irregularities of traffic during the seasons of the year. But it is conceivable that once the principle of flexibility in freight rates had become familiar and the railroads had become convinced that an increase in rates might be as readily accomplished as a decrease under conditions that were justifiable, the practice might be extended beyond the seasonal fluctuations to those that concerned the wider swings of business activity. The degree to which such a policy would be practicable could be determined only by experiment, but the plan has in it much promise of genuine assistance to industry.

CHAPTER IV

UNEMPLOYMENT—PREVENTION AND INSURANCE[1]

John R. Commons

THE President's Unemployment Conference made certain recommendations which, upon examination, are found to consist of advice to the different branches of government of the United States—cities, states, counties, and federal—to adopt a policy of shifting public work from busy seasons and prosperous times into dull seasons and hard times. The idea is that of dovetailing public work into the periods of unemployment in private work.

[1] The writer is obliged for the use of articles or reports of speeches to the *Survey*, the *American Labor Legislation Review*, and the *National Civic Federation Review*. See article by John R. Commons on "Unemployment Prevention and Compensation" in the *Survey*, October 1, 1921, "Unemployment Prevention" in *American Labor Legislation Review*, Vol. XII, No. 1, 1922; Report of Unemployment Insurance Conference, January 31, 1922, National Civic Federation. Also "American Legislation on Unemployment Compensation" in *American Labor Legislation Review*, Vol. XI, No. 1, March, 1921. For discussion of bill recently introduced in the Massachusetts legislature (House No. 278) see article by Henry L. Shattuck on "Unemployment Insurance Legislation in Massachusetts" in *American Labor Legislation Review*, Vol. XII, No. 1, March, 1922, published by the American Association for Labor Legislation, New York City.

This idea of shifting public work so that it will dovetail with private work was first propounded, as far as I know, a hundred years ago, following the Napoleonic Wars. In the great debate between David Ricardo and Robert Malthus, the founders of political economy, Ricardo took the position that labor alone determined value, that profits fell as wages rose, and that profits were tending to a minimum. Karl Marx came along thirty years afterward, took Ricardo's doctrine, and said, If labor produces all wealth, then labor should own all the wealth; and if profits are tending to a minimum all the time, then capitalism is destroying itself and labor will come into possession at the revolution. But Malthus said, As soon as profits reach the minimum, business stops, unemployment comes on, and business will not start up again until public work is shifted to the periods of unemployment, along with an increase of other kinds of employment whose product does not come upon the competitive markets. Thus there will be created a body of consumers to whom the employers can sell their product. Then employment will start up again and we shall have the cycle repeated.

The two great theories, then, which, for a hundred years since the Napoleonic Wars, have contended for supremacy, are the Ricardian theory, which was taken up by Karl Marx and ended in modern socialism, and the Malthusian theory of business cycles, which is the one that people in all countries are now

accepting. For the business cycle has come every five or ten years during the past hundred years. Wars seem to make no difference. A war will raise the peak higher and turn the trough down lower, but it does not seem to interfere very much with the rhythm of overemployment and unemployment. So that all minds thinking on this subject seem to agree that the proper method of handling unemployment is that of shifting employment from periods of overemployment to periods of underemployment; in other words, smoothing out the seasonal cycle and this business cycle by distributing the production to better advantage.

As I understand the principle of unemployment insurance, it is proposed to apply the same reasoning to private employment that the President's Unemployment Conference and Robert Malthus proposed with reference to public employment. Public employment takes up about ten per cent, we will say, of the labor work of the country, counting all of the employment that is paid for out of taxes. The other ninety per cent is under the control of private business.

The recommendations of the President's Unemployment Conference are certainly an essential feature of a program towards stabilizing employment, but there should be added an inducement to private employers to stabilize private employment.

The Huber Bill, which was introduced in the

Wisconsin Legislature in 1921,[1] is based entirely upon the principles and upon the procedure of the Accident Compensation Law of that state. The accident compensation law goes on the idea that if a right of action is given to the working man against his employer for compensation on account of accident, at a dollar and a half a day during the period of his disability, then the employer will install safety devices, will build up a safety department, will shorten the periods of disability, and will proceed to reduce those accidents.

So with unemployment insurance. If a right of action at one dollar a day for thirteen weeks while out of work is given to the workingman who is laid off through no fault of his own, then the employers will stabilize their work, and will set up employment departments and get other employers to take on their workers when they are compelled to lay them off through lack of work.

The serious point of the so-called conflict of capital and labor during the past hundred years has been unemployment. The older economists, following Ricardo, held that the elasticity of modern business was provided for in the rise and fall of prices through the law of supply and demand. But they assumed that capital and labor were fluid, so that everybody was employed practically all the time and all com-

[1] This bill received a majority vote in the Senate, but after being amended by its opponents so as to remove the exemption of employers having less than three employees, the bill was abandoned by its sponsors.

modities were on the markets and were being bought and sold all the time. If commodities in some directions were abundant then their prices would fall, which meant that the prices of other commodities would rise. Then the disparity would equalize itself by capital and labor shifting from the low-priced and oversupplied industries to the high-priced and undersupplied industries. The rise and fall of prices through oscillations of demand and supply made the system elastic and harmonious.

Seventy years ago Karl Marx came upon the scene with exactly the opposite interpretation. He rejected the law of demand and supply, with its oscillation of prices, and held that the elasticity of modern capitalism is found in the reserve army of the unemployed: Just as modern business must have a reserve fund in the banks and a reserve stock of goods on the shelves and in the warehouses, in order to provide elasticity, so it must have a reserve army of that other commodity, labor, which it can draw upon in periods of prosperity and then throw upon its own resources in periods of adversity.

It was seventy years ago, also, that modern trade-unionism started in England and America. It started on the same hypothesis of unemployment, but it retained the economist's doctrine of demand and supply. There is not enough work to go around, because the wage fund is limited, and therefore the workman must string out his job; must go slow; must restrict output; must spread out the work;

must limit apprenticeship; must shorten the hours; must share his work with the unemployed, in order to take up the slack of unemployment and make the work go round.

This theory is not peculiar to labor unions. It is the common conviction of all wage-earners, burned into them by experience. In an unorganized factory, if a man goes in and kills the job, the men touch him on the shoulder and say, "What's the rush? What's the hurry?" Willing, ready, and able to work, needing the work for themselves and families, there is no demand for their work. Trade unionists differ from unorganized labor in that they have power to put into effect what the others would do if they could.

And who shall say that they are not right? Two years ago business men, newspapers, intellectuals, were calling upon the laborers to work harder; their efficiency had fallen off a third or a half; they were stringing out the jobs. Then suddenly several millions of them were laid off by the employers. They had produced too much. The employers now began to restrict output. Where labor restricted output in 1919 and 1920 in order to raise wages and prolong jobs, employers restrict output in 1921 in order to keep up prices and keep down wages.

We may condemn the fallacy of making work by restricting the amount of work. It is doubtless true that labor and capital never can produce too much to supply our wants. But laborers and capitalists

know that they do produce too much to pay wages, interest, rents, and profits.

Thus the two great forces, socialism and trade-unionism, have arisen to attack the supremacy of capitalism, and each is based upon the greatest defect of our capitalist system, its inability to furnish security of the job. We are accustomed to look upon capitalism as a product of the industrial revolution. We look upon labor and capital as productive, meaning by capital the steam power, the electricity, the machinery, buildings, railroads of the industrial revolution; meaning by labor the manual, mental, and managerial abilities of workers and managers. But this kind of capital and labor does not produce wealth. Our enormous production of wealth goes back to the business revolution of the seventeenth century. It is found in the enforcement of contracts and in liberty to get rich by buying and selling. It is the business revolution of the seventeenth century that established our credit system, and our credit system is nothing more or less than confidence in the future. Modern capitalism overthrew feudalism, because it furnished to investors security of investments. Without the credit system people would not trust their commodities out of their own hands. We might have production of wealth without the credit system, but it would be the hand-to-mouth production which would turn us back to feudalism or Russia.

Why is it that workingmen in all parts of the

world have gotten the idea that they can manage business better than the business man? Socialism in Europe—Guild Socialism in England—the Plumb Plan in America, endorsed in principle almost unanimously, for all big industries, by the last convention of the American Federation of Labor, against the protests of their seasoned leaders—all agree on this: that the workers on the job can manage the production of wealth better than the business men, the bankers and the financiers in the offices or on Wall Street. Why has this idea spread so widely?

It is partly this mistaken theory as to what it is that produces wealth. They think that it is machinery and labor and the engineering profession that produces wealth. They do not see that it is the credit system. Laborers can produce wealth, but they cannot produce it in the enormous abundance, and cannot conduct industry on the enormous scale required to support modern populations, unless backed up by a banking system that furnishes security of investments.

Labor has attempted to operate industry and has always either broken down if unsuccessful or gone over to the capitalists if successful. The Knights of Labor was their last great attempt in this country to manage the production of wealth on a coöperative basis. It is blindness to history to preach to labor that labor as a class can ever manage industry. Individuals rising out of the labor class can manage industry, but then they become business men and

immediately organize a corporation, close the doors, and hire the other laborers to work for them. Labor as a class remains where it was. Labor as a class includes young workers coming into industry; includes individuals coming and going; includes those who have failed in business; includes immigrants, negroes, women, and children. They cannot collectively manage industry. A few of them, like Lenin and Trotsky, will get on top and manage the others.

Most serious, labor as a class can manage industry only by popular election of the boss, and no class of people, intellectual or manual, can permanently be trusted to elect their own bosses. Labor as a class, in control of industry breaks down on depreciation accounts, on reserve funds, on the credit system, on discipline.

Our capitalist system has grown up, not by popular election, but by struggle for profits and natural selection. Those who survive are those who can make profits and maintain discipline. A democracy would never have elected John D. Rockefeller to manage the oil business or Andrew Carnegie to manage the steel business. They were self-elected by natural selection in the struggle for profits, and they came to the front by their superior ability to select subordinates, to manage laborers, and to inspire the confidence of investors. Anybody would trust his savings to John D. Rockefeller, however much he denounce him, but nobody would trust his savings

in large amounts to the business agents of a labor union or to a board of directors elected by the employees. It is security of investments and liberty to get rich in the struggle for profits, that produce our modern enormous wealth.

Modern capitalism is built also on the doctrine of equality as well as liberty. Yet, considering our economic situation, these doctrines are illusions. If all people were exactly equal, physically, morally, and economically, then nobody could take any advantage over anybody else, and it would be perfectly safe to have absolute liberty unrestrained by duty. But if there is great inequality, then the strong have duties corresponding to their inequalities.

Our capitalist system results in great inequalities, and even enlarges the natural inequalities among men. It gives enormous power to those who control the credit system of the country. Workingmen, taxpayers, farmers, are helpless before it. Power brings responsibility—responsibility for inflation, responsibility for the collapse that follows inflation. The credit system is founded on the responsibility of business management to the widows, orphans, workingmen, and retired business men who have put their savings into industry.

But capitalism has failed to give to the wage-earner that security of the job which it has given to the investor in the security of his investments. The wage-earner and the investor are much alike. They are passive. They work and wait. They want

wages, interest and security. But the business man is the dynamic factor. He initiates, plans, overcomes risks, takes responsibilities. He is the Captain of Industry. The law makes him responsible for the security of investments, but does not make him responsible for the security of jobs.

In times past it was important to get people to save, and to get them to trust their savings to business men. Now we find that that is less important. Business accumulates a large amount of involuntary savings out of the margin between wages and prices. To-day it is becoming more important to get the willingness of workers than the willingness of investors. As our industrial system grows in size, wage-earners who have little or no investments except their labor-power are becoming a dominant part of the nation's population. In England perhaps four fifths of the population are wage-earners and their families. In America they are probably one third. England and Europe waited too long before they tried to establish security of the job, and now, in the last predicament, when the wage-earning population is the bulk of the population, they find themselves menaced by the insecurity of jobs.

America should take its lesson early. It might recognize that, while this credit system and liberty to get rich are the foundations of prosperity and must be preserved at all hazards, yet, on the other hand, it is this very credit system, and this liberty to get rich by buying and selling, that are the cause

of the disastrous cycles of prosperity and depression of the past hundred years.

Prices rise; profits swell; wages follow, everybody is confident and overconfident; speculation overreaches itself; the future looks more assuring than it is; too many buildings and factories are constructed; then the inevitable collapse. Hundreds and thousands of workingmen are laid off. Business establishments go into bankruptcy or liquidation. The credit system breaks down. Then the cycle repeats itself.

Many workingmen and farmers, at the present time, are of the opinion that our sudden disastrous slump of 1920 was brought about by a conspiracy of financiers. Workingmen believe it was a conspiracy to destroy their unions. Farmers believe that it was a conspiracy to rob them of their property. Yet it does not seem possible that any conspiracy could have produced this collapse out of a clear sky. Financiers might hurry it up or delay it a few days, but could not arbitrarily produce it. The causes must be found by going back to the year 1919 when the inflation of credit was going on. There was no conspiracy at that time. It was the overexpansion of 1919 that caused the collapse of 1920. Hence any improvement that looks to the prevention of unemployment must go back to the period of inflation and prevent the overexpansion that caused the unemployment.

The three main causes of unemployment are the

labor turnover, the seasons, and the credit system. The labor turnover as a cause of unemployment is not a serious matter. Rather is it a good feature of modern liberty. Liberty means labor turnover; it means that the worker can quit one job and go to another; it means that the employer who is dissatisfied with the inefficiency or misconduct of the employee can dismiss him and he can look for a job for which he is better fitted. Consequently in the Huber bill for the insurance and prevention of unemployment, it is provided that the first three days of unemployment shall not be considered unemployment. The bill places the date of the beginning of unemployment compensation the fourth day after the workman is laid off. Labor turnover can be accommodated on about three days' time for hunting a job if employment is steady.

The question of labor turnover may not be considered a serious feature of the unemployment problem. It has other evils, however. It is expensive to the employer. Better for him is a steady force of good and willing workers, who feel that his industry is a place where they want to stay for life. Yet there are establishments that go on the other policy. They consider it is better for them to have a procession of floaters than it is to have steady workers. This is a matter of choice, largely, with the management.

The summer and winter seasons are not the most serious problem of unemployment. They are a cycle

which comes regularly every year. Certain industries have a busy period in the summer, others in the winter. Consequently, with a regular recurring cycle, both the firms and the workmen learn to adjust themselves. In some cases the adjustment is made by hiring men by the year on a salary basis; in other cases by dovetailing industries, such as the coal and ice business. If that is not accomplished, then there remains the alternative: Pay the worker higher wages during the busy season, so that he can tide himself over until the following busy season which can be calculated upon. The leading example is in the building trades in northern sections. The building workmen receive high wages, say a dollar an hour, but as they work only about eight months a year, that dollar an hour is equivalent to only about sixty-five cents an hour through the year. The building trade mechanic ordinarily does not have any other occupation that he can dovetail, so that in the busy season we pay him a dollar an hour, sixty-five cents of which is wages, and thirty-five cents of which is a kind of insurance or retainer, in order that he may be on hand the next season when we want to open up business. Yet there are large building contractors who are learning how to spread their work over the year.

Where the industry does not equalize itself, the employer must make some special arrangement in order to keep labor steadily employed throughout the year. One of the illustrious examples in this

country is the Dennison Manufacturing Company, of Framingham, Massachusetts. This company started as manufacturers of Christmas trinkets. Their busy season began in September, when the retailers ordered their goods, and ended with about three or four months of intense crowding and overwork. Then they adopted a definite purpose of stabilizing their business. They did it by various devices, well known to manufacturers at the present time. They coördinated their sales department with their production department and it became the business of their salesmen to induce the retailers to order in advance, so that the manufacturing could come along throughout the year instead of being concentrated in one season. Now they begin manufacturing Christmas cards fifteen months before they are actually sold to the ultimate consumer. They introduced many other products to which their employees could be transferred, and they trained their workers so that they might change from one occupation to another or something nearly like it. Now they manufacture several thousand different articles, and for several years they have had no unemployment. They have stabilized their industry by dovetailing and spreading out. It has required ingenuity, good management, and good salesmanship, but it has been accomplished.

Modern business can stabilize seasonal employment if it is deemed worth while, and can even stabilize the credit cycle. Mr. Redfield, former Secretary

of Commerce, has cited his own case, in the metal industries, where since the year 1890 they had not laid off a man on account of lack of work. In the hard times of 1893 to 1897 it was skating on thin ice, and they had great difficulties, but they succeeded. It was accomplished through division of labor on the part of the management. It was the business of the sales department to adapt itself to the work of the production department.

This idea is well recognized. The sales department must be subject to the production department, so that rush orders are not taken on that cannot be delivered except by an overexpansion of the business, with a certainty that men must be laid off after the rush orders have been finished. The cycle of unemployment is the cycle of rush orders. When credit is good and prosperity is around, people will not wait. The business man thinks then that he must expand his factory; he must take on more laborers, he must get out his orders quickly, or somebody else is going to get those orders.

But more important than the employer is the banker as the stabilizer of employment. During the recent overexpansion a certain manufacturer applied for a loan of $250,000 in order to enlarge the plant. The banker turned the application over to the bank's industrial engineer, recently added to the staff, and he showed the manufacturer how, by better economy and better labor management, he could get along without that loan of $250,000. The banker put the

screws on the manufacturer. Six or eight months afterward, when the collapse came, the manufacturer was profuse with thanks to the banker. The service of refusing him credit in order to prevent expansion was much greater than would have been the service of furnishing him credit.

The banking system, which is the center of the credit system, more than the business man who is the actual employer, can stabilize industry, and, in stabilizing industry, stabilize employment. The difficulty is that no one individual can do it alone; no bank can do it by itself; no one business man can do it by himself; it is a collective responsibility and collective action is necessary. If one person is trying to stabilize his industry by not overexpanding and not taking too many rush orders, he simply knows that his competitors will get his business. But if all the business men, who are competing with each other, know that the banks are treating the others in the same way, then stabilization might be expected to work. So that the inducement to stabilize employment, in order that it may be really effective, must not only take the example of those manufacturers who have pioneered the way themselves, but must interest the entire banking system of the state or nation in the plan.

Now the Huber bill proposes that when an employer lays off a man, if the man has had six months' work in the state, the employer shall pay him a dollar a day for a period of thirteen

weeks, and pay the state ten cents a day additional toward expenses of administration. This creates a possible liability of about $90, added to every man taken on, in case he is laid off through no fault of his own, but simply through fault of the management. It means an added liability which the employer assumes when he hires a workman, so that, under such circumstances, it should be expected that when an employer wants to expand, and he ordinarily cannot expand except by getting credit, to be followed or increased by stock or bond issues, he will go to the bank for additional credit, and the banker will necessarily inquire as to what security he has that, at the end of these rush orders, he will be able to continue the employment or pay that possible $90. In other words, the business man and the financier together are the controllers of credit, and it is the control of credit which can stabilize business. The overexpansion of credit is the cause of unemployment, and to prevent the overexpansion of credit you place an insurance liability on the business man against the day when he lays off the workmen. The last employer is made responsible, but he is required to insure himself, so that the industry is made responsible.

As to the practicability of a proposition of this kind, unemployment insurance is already in existence in seven or eight countries, with a somewhat different system. It was started some twenty years ago in the canton of St. Gall, Switzerland, with

a system which broke down because wrongly conceived. It then spread to Belgium, where it has been in operation for some twenty years; then to Denmark some fifteen years ago; then England took it up on the grandest scale yet known. It applied in England, some ten years ago, to two million workmen, but since the war the number has been increased until the law applies to twelve million workmen. Italy followed the example of England. Norway has established the system. It appears that the industrial unrest in England and Denmark would before now have brought revolution had it not been for this unemployment insurance. By taking note of the experience of these countries, it is possible for America to improve upon their systems.

The defects of the European systems seem to be twofold: In the first place the State goes into the insurance business and operates an insurance fund, and in the second place the finding of jobs is left largely to the trade unions.

The system which was started in St. Gall broke down in two years. It provided for compulsory insurance on every workman. The workman was to insure himself. The state did not contribute and the employer did not contribute, but the workman was assessed and he had to pay into a state fund for his own benefit in case of unemployment. The result was that workmen began to leave the canton. The system broke down.

It was next taken up about fifteen years ago in

the city of Ghent, Belgium. A different feature was added. It provided that if any association of workmen of a voluntary character should be organized for the relief of unemployment and the accumulation of a fund, the city of Ghent would add one half of the amount that the association paid out. In other words, the city of Ghent subsidized the trade unions, which were the only organizations that could take advantage of the law. They already have their out-of-work funds; they already have their employment offices, their business agent to find jobs, and the city of Ghent comes to their aid, subsidizing them by paying practically one half the amount that the union itself had paid. Apparently the only reason why that system has worked in Ghent and has spread over Belgium is because certain individuals have given very great and careful attention to it.

When the same system, applied in Denmark, had resulted in great abuses, and the law was revised in 1920, it was provided that the unions should no longer decide whether a man was entitled to compensation benefit or not. A state officer was appointed whose business is that of an umpire to decide as between the union and the State. The practice of subsidizing the union was continued, but the provision took out of the hands of the unions the decision as to whether the union is entitled to the state subsidy or not.

When England took it up, ten to fifteen years after

these other countries, she adopted an entirely new idea: that the three parties were to contribute. The workman was to contribute something like five cents a week, the employer five cents a week, and the state two and a half cents a week. This money was to be put into a state fund, operated by the Government. But England retained the feature that if a trade union was paying out-of-work benefits it could present a bill to the Government showing the amount of money it had paid out and the Government would refund to the union the amount called for by the insurance scheme.

These theories and practices in Europe have been based upon the idea, first, that unemployment is something that cannot be prevented, that it is something inevitable, and that, this being the case, a philanthropic system to aid working people when out of work should be established; second, that the State should both contribute to the fund and operate the insurance business. The defects and failures of the European systems resolve themselves into this: they placed the responsibility upon the wage-earners and upon the State instead of solely upon the employers. St. Gall placed the responsibility solely upon the wage-earners. The experiment broke down within two years. The Ghent system placed the responsibility on the wage-earners, but added state or municipal subsidies. England followed, but placed the responsibility jointly on wage-earners, the State, and the employers.

But neither the wage-earners nor the State can prevent unemployment. All that they can do is partly to relieve it. Hence their experiments are paternalistic, socialistic, and philanthropic. But the business-like way of doing it is to place the responsibility on the business men, who alone are in a position to prevent it.

This is our modern idea of social insurance, as we have learned from the accident compensation laws. Twenty years ago, when St. Gall, in Switzerland, placed the entire burden upon the laborers, the theory of insurance was that of providing against an inevitable accident caused by forces over which man had no control. In fact, economists have very largely contributed to that misapprehension. A famous British economist demonstrated that business cycles and the periodicity of unemployment were caused by changes in the spots on the sun; as the sun-spots came around every eight or nine years, so prosperity and depression came. Recently, an American economist finds that the planet Venus goes around a cycle in eight years, and, what is curious about Venus as compared with the earth, she always keeps her face to the sun, so that when she has her back toward us, we have hard times, and when her sunny side is toward us, we have good times.

Well, agriculture may be subject to the moods of Venus and the spots on the sun, but it is our credit system, our business system, which causes indus-

trial unemployment—the overexpansion in prosperous times, the facility of getting credit from the banks when profits look promising, the overconstruction and overbuilding in prosperous times. And, then, we find that all industries have a very large amount of excess plant, of excess construction, much more than is necessary to supply the entire needs of the nation or market if they were continuously operated through the year. The cause of that is in our credit system. It is easy to get credit, easy to get advances, if you have a prospect of profit. And it makes it possible to have overexpansion. If we were going to prevent the underemployment and induce business men to shift their employment over further into the probable dull seasons and dull periods, we would naturally begin with the credit system and with a pressure that would reach the bankers.

It is quite natural that the working people of England should take the ground that it is not insurance they want, it is employment that they want. They have exhausted their reserve fund. The State has had to come to their aid and contribute great direct appropriations, or "doles," as they call them. But the working men of England are not inclined to give up the unemployment insurance. They want something added to it which shall provide employment. They do not want insurance, they want employment. So it comes back to the question, Who is responsible, who is in a position and able to furnish the employ-

ment, if the right inducement is presented? Much of the American criticism of the British law confuses the "doles" just mentioned with the unemployment insurance. When the Armistice was signed in 1918, unemployment insurance then covered only a portion of the workers threatened by unemployment by the shift from war to peace-time industry. In the emergency the Government appropriated the doles out of the taxes. These doles, moreover, were a much larger part of the lost wages than that provided in the insurance, and thus tended to encourage malingering. The criticism of the British unemployment insurance is really a criticism of the doles and not of the unemployment insurance. Yet both the doles and the insurance are based on the theory of poor relief and are an extension of the poor law, rather than a business system of preventing unemployment by placing the burden solely on employers.

The Huber bill, introduced in Wisconsin, like the Shattuck bill in Massachusetts, abandons the idea that the state can operate it, or that anything permanent can be accomplished by doles or philanthropy. It starts on the idea that the modern business man is the only person who is in the strategic position and has the managerial ability capable of preventing unemployment. In other words, the system proposed is exactly like that of the workmen's accident compensation law of this state. Mutual insurance companies are created, operated, and managed solely by the employers. These companies are

created upon the same principle as the state's accident compensation law. The employers establish their own premiums, supervised by the state insurance board; they pay out the benefits to the workmen, exactly as they pay out the benefits under the accident compensation law. The only difference is that, instead of the doctor who cures the man of accidents, the bill provides an employment officer who finds the man a job. The system avoids the socialistic and paternalistic schemes of Europe. It is a capitalistic scheme. It avoids the socialistic scheme, in that the state does not go into the insurance business; it avoids the paternalistic scheme of paying out relief for an inevitable accident. It induces the business man to make a profit or avoid a loss by efficient labor management. It places the compensation so low that the workman has no expectation of more than enough to pay his rent.

If we may judge from what employers have done in the case of the accident compensation law, we may predict what they will do under an unemployment compensation law of this kind. When the state of Wisconsin enacted its accident compensation law, it tied it up with an accident prevention law and placed both laws under the administration of the State Industrial Commission.

The Industrial Commission then made a search throughout the country to find the best man for the prevention of accidents. They found C. W. Price of the International Harvester Company and suc-

ceeded in inducing him to come into the state and take up the work of accident prevention. This was done even before the compensation law went into effect. Mr. Price organized the accident prevention work; he started the safety movement. He started organizations in the shops and in communities. He established safety committees by which the employers themselves, along with their engineers and their workmen, drew up safety rules. The Industrial Commission law provides a place for these advisory committees. If one examines the three hundred pages of the labor law of the state, he will find that the legislature enacted only one hundred pages and these advisory committees of employers and employees drafted two hundred pages. These were then issued as "orders" by the Industrial Commission. Two thirds of the labor laws of the state are actually made by the men in the industries, who must obey the laws and who therefore frame them. The legislature simply has given to the Industrial Commission the power to make these rules and orders, and has authorized the commission to bring in the employees and safety experts to assist in making them.

The unemployment compensation bill follows along the same line. We can safely predict how it will work. At the time when the accident compensation law went into effect one of the large firms of the state came to the Industrial Commission with the alarm that the law would increase their premium

for employers' liability from $5,000 a year to $22,000 a year. The insurance company had put up their premium to that figure under the new law, and the claim agent had figured it out the same. The commission asked them why they did not adopt the "safety first" movement; why they did not convert their claim agent into a safety expert; why they did not equip their plant with safeguards and teach their workers "safety first." They took the idea and equipped their establishment "fool proof." The first year, instead of paying $5,000, or $22,000, on account of increased cost of premiums, they paid only $2,500 on account of industrial accidents. They made money by the new law.

It is amazing what business can accomplish when it has a sufficient inducement. If there is enough money in it, it can accomplish more than any other agency. At the present time the business men of this country have formed their great National Safety Council. They have taken Mr. Price away from Wisconsin and have taken three or four other employees of the Industrial Commission who have made names as safety experts. They have put them in charge of this National Safety movement, and they are carrying on throughout the nation, not only in the factories but on the streets and in the schools, a great safety campaign. They have taken these people away from the state, because the state will not pay high enough salaries. Public business will always be more inefficient than private business, be-

cause, as a man becomes efficient in public business, he either gets fired on account of politics or the business man hires him and pays him a bigger salary. These former employees of the Industrial Commission are now paid three to five times the salary paid by the state.

The manufacturers of the nation, with their help, are now doing more for safety than all the legislatures, all the labor organizations, all the philanthropic associations, ever thought possible, simply because they make money by doing it and the others do not. They even operate safety campaigns on the streets and in the schools, indirectly reducing accidents in the shops. The employer was probably never legally liable for more than a third of the accidents in the shops. The hazard of the industry and the carelessness of workers and fellow workers caused the other two thirds. Yet the employer was made responsible for all the accidents. He knows how to "sell" safety to the public and to his own employees, and to turn safety into profit.

Likewise, in Wisconsin, the State Employers' Mutual Liability Insurance Company has taken over actuaries and safety experts from the Industrial Commission, at higher salaries. At the hearings on the Huber bill, a leading employer, while opposing the bill, showed how it would work. He figured that the proposed law would cost his firm $50,000 a year. If it should go into effect he would not trust the state employment officers—he would hire his own

employment manager to find jobs for his men when he laid them off.

This is the business way of looking at it. The state will pay low salaries to men responsible for spending $20,000,000 a year, because the people cannot measure inefficiency, and the legislature can save the state from bankruptcy out of the pockets of the taxpayers. But the business man, who must measure inefficiency by bankruptcy in dollars and cents, will pay an employment manager two to five times the state salary in order to save $50,000 a year.

Incidentally, efficient employment management, as it has come to be known during the past ten years, may be expected to make money for employers under an unemployment compensation law if organized like their safety work. The reduction of labor turnover, the dovetailing of jobs, the training of employees for different jobs, the training of foremen in handling men, the selection, promotion, and transfer of employees, the spreading out of the overhead expense, the cultivation of willingness, the improved morale of steady workers, all belong to this new profession of the "industrial engineer." The saving effected by the new efficiency of this new profession may be expected to exceed the cost of the unemployment compensation which both makes it necessary and opens up a wider field for it. All that they need to do in addition is to transfer employees from one industry to another, as the Multigraph Company has begun to do.

In Cleveland, Ohio, there has recently occurred an experiment in unemployment insurance. The Ladies' Garment Industry is highly seasonal, running from thirty to forty weeks a year, divided into two seasons. By agreement with the labor union, the associated employers guaranteed forty weeks' work and one week's vacation with pay and set up a fund of seven and a half per cent on the pay roll during the forty weeks' period, out of which to pay two thirds of the union minimum rate for the balance of the forty weeks if they laid off their workers. One firm had accumulated $15,000 in this fund, held by a trustee. Its work for the season had come to an end. But the firm figured on a big contract which they could take at a loss of $5,000, but which would keep their force employed until the end of the forty weeks. This contract would not otherwise have been let at all, hence it did not take work from any other laborers. This Cleveland firm took the contract, lost $5,000, but got back the $15,000 from the insurance fund. What happened, it will be seen, was that the company set aside a part of its profits during the prosperous season in order to operate at a loss during the dull season, and thus avoided paying out unemployment relief to unemployed workers. It carried out the demand of the British workers in that they do not want unemployment insurance, they want *employment*—but it was the unemployment insurance that induced the employer to furnish the employment.

The Cleveland employers and employees have gained in another direction. The prospect of a guaranteed period of employment played an important part in influencing the union to accede to the adoption of production standards, set under the joint supervision of the union and of the manufacturers' association. The system of standards combines a minimum rate, plus additional earnings proportioned to individual output. A report of the industrial engineers employed jointly by the employers and the union, shows that under standards the output of workers on piece-work increased fifteen per cent and the output of workers on week-work increased forty-seven per cent. When the agreement was renewed the second year, the period of guaranteed employment was changed to forty-one weeks without paid vacation.

In accordance with the lesson of this experiment the Huber bill, as amended, provides that seasonal industries may be classified by the Industrial Commission, so that instead of insurance over a period of fifty-two weeks, each seasonal industry may be insured only for the reasonable period during which that industry operates. As experience is gained the commission can lengthen the season. This amendment corrected the principal point of objection to the Huber bill.

Consider, too, how much increased efficiency employers get by having a steady force of workmen who can feel that it is practical for them to buy their

homes. Under our present system it would usually be a mistake for workmen to buy homes. Home ownership ties the workman down to the job. It ties him to the locality and he loses his power of movement when unemployed. Under a system of stabilizing employment the workman can afford to engage in home building, his main inducement to thrift.

This increased efficiency and thrift and spreading out of overhead expense is the answer also, in part, to the objection that one state cannot pioneer the way, on account of interstate competition. Such objections did not hold back accident compensation laws. The increased efficiency in avoiding accidents may be repeated in avoiding unemployment. But this objection has a certain validity and can be met in full only by introducing the system gradually. Certain transitional measures are required. A preventive measure cannot prevent a condition already existing. Hence a revision of the Huber bill provided that the law should not go into effect until a finding should be made by the Industrial Commission that business conditions are improving and workmen are being reëmployed in reasonable numbers. That is the time when companies begin to set aside their reserve funds for investors and they can then set them aside also for unemployment. Then, too, they begin to pay their premiums to the mutual insurance company.

Further than this, there is no actuarial experience

on which to base premium rates. The best statistics are from Massachusetts. They show that in the factories of that state, over a period of twenty-five years, the amount of unemployment averaged about five weeks a year. It went as high as thirty per cent in the years 1893 to 1897 and as low as two per cent in the best years. The average was about ten per cent. That is almost the only existing basis for calculating premium rates.

Consequently, an initial period of three years is provided in the revised Huber bill, during which the maximum period of compensation is fixed at six instead of thirteen weeks. And further, if, during this initial period, the reserves of the insurance company run low and menace the solvency of the company, the Industrial Commission is authorized to shorten the period to even less than six weeks, in order to protect the solvency of the company. This feature is taken from the insurance plan of the Dutchess Bleachery.

For the purpose of working out the rules and regulations, a State Advisory Board of employers and employees is provided. This has been the method by which, as already mentioned, the safety and sanitation orders, the minimum wage orders, the apprenticeship rules, and other orders of the Industrial Commission were made. So the unemployment compensation bill provides a framework, and leaves the details to the employers' insurance company and the advisory committee of employers, employees, and

employment managers, under supervision of the existing state authorities.

The duty of the latter is simply to see that the law is carried into effect and to decide disputes. The employers and employees themselves make the rules and the state acts as umpire. The eleven state free employment offices are already managed in some cases by these joint committees, coöperating with the State Commission, and no material change is needed in their administration. They become mainly recording officers for the unemployment compensation law, since the employers do a large part of the job-finding themselves through their employment managers and their insurance companies.

Then the law would naturally give a certain leeway. If the employer reduces his hours of labor to, say, four or five days a week all round, at the same rates of pay, instead of laying off anybody, it would not be counted as unemployment. Many employers already do this. They would not pay the unemployment compensation. And in making these decisions the state umpire is aided by representatives selected by the employees and by the employers and the trade unions, so that there may be little or no complaint of injustice.

At this point is the only serious objection that I have heard from the standpoint of labor. It is feared that a law of this kind would give government officials an obnoxious power of supervision over wage-earners. But it would not do so. What is

proposed is that when an employee is laid off for lack of work he shall have a right of action against his last employer for unemployment compensation. If the employer pays it, nothing further occurs. If the employer declines, then the employee appeals, not to the courts, but to the umpire appointed by the state. Only the State Supreme Court finally decides on questions of law and jurisdiction. This is exactly the procedure in most of our accident compensation laws. In the Huber bill most of the rules and regulations, the interpretations of the law and the procedure, are taken from the British system. The British system was established in 1912. It was revised in 1920, and these particular rules and regulations were not materially changed. They had been working satisfactorily for eight or nine years and are now continued.

In the first place, a worker under the British rules is not entitled to compensation benefits if he leaves his work of his own accord or if he is discharged because of inefficiency or misconduct. He is not entitled to compensation if the unemployment is caused by strikes or lockouts, either in his own shop or in related shops. No strike or lockout entitles a person to the unemployment benefit. He is required to accept a job which is offered to him through the public employment offices, a job which must be substantially equivalent in compensation and conditions to the one which he has, and not too remote from his home. Yet if traveling expenses are paid

by the employer he can be required to take a remote job, or forfeit his compensation. Of course he cannot literally be compelled to take the job, but if he does not take it his unemployment compensation ceases and the employer's liability is discontinued.

The workman must apply to these public employment offices for vacant jobs, and the employer must report any jobs which he has looked up with other employers. The public employment office becomes a registration office. There is at every employment office a board of arbitration to settle disputes. If the workman claims compensation and the employer denies it, the claim can be taken up by a board appointed by the government, consisting of one employer, one employee, and a third party. The employment officer in the first case makes a record as to what the job is and he then notifies the employer whether the man is entitled to compensation or not. If the employer objects, he can appeal to this board, which meets every Saturday in an informal way at the employment office. If the workman objects he can appeal to the board of three, and finally, if that does not settle the claim, he can appeal to an umpire.

In England they have one umpire to settle all of these cases on appeal, and during the first four or five years there were only fifteen hundred cases appealed to this umpire. Any person, reading the decisions of that umpire, can easily ascertain how the law worked, for there are interpreted all the points

as to whether the person is entitled to the unemployment benefit or not.

Finally, if the employer or the state employment office is not able to find a job for his workmen he falls back on his insurance fund. The United States Steel Corporation has been paying dividends during the period of depression out of its reserve fund set aside during the period of prosperity. Investors are made secure by an insurance fund for dividends. It is just as important that laborers should be made secure by an insurance fund for wages. Already the Dutchess Bleachery and the Dennison Manufacturing Company have started such a fund.[1] An unemployment reserve fund has many advantages over profit-sharing, stock-sharing, or similar devices intended to interest workers in the prosperity of the business. Wage-earners do not appreciate profits and profit-sharing—they want wages every week and security for the future, just as investors want interest and security.

In any proposition of this kind there are two questions. Is it practicable? Is it desirable? The foregoing has indicated its practicability. It is based on the knowledge gained from the experience of vari-

[1] See *American Labor Legislation Review*, Vol. XI, No. 1, March, 1921; also article by Wm. J. Mack on "Safeguarding Employment: The 'Cleveland Plan' of Unemployment Compensation" in *American Labor Legislation Review*, Vol. XII, No. 1, March, 1922; also 24-page reprint "Experience of American Employers Favorable to Unemployment Compensation," published by the American Association for Labor Legislation, New York City.

ous European countries and upon our experience with accident compensation. But, is unemployment insurance desirable?

Our modern capitalistic system has been based upon the liberty of the employer to conduct his business in his own way. In the last twenty-five or thirty years, we have begun to add responsibility to capitalism. We have added responsibility in the case of child labor; we have added responsibility in some places, as to the minimum wages; we have added responsibility as to accidents. All of these are intended to preserve our capitalistic system by protecting it at its weakest point.

We used to hear, fifteen years ago, the labor spokesmen on the streets condemning their employers, the capitalists, on account of the profits that they made out of the flesh and blood of the working people. The Accident Compensation Law has removed that bitterest point of struggle between capital and labor, and it was the greatest step which has been made to preserve our capitalistic system. But we do hear now that capitalism makes its profits out of the poverty and the misery of unemployment and the reserve army of the unemployed.

We have this great menace to our industries to meet. Europe has waited until eighty per cent of the population are wage-earners. As is well known, countries of Western Europe have been compelled to contribute directly out of their taxes, in order to

prevent revolution. America has only reached the point where about a third, or forty per cent, of her population are wage-earners. A growing proportion is becoming wage-earners. It behooves us, then, if we believe that the capitalistic system is necessary for the production of wealth, if we believe that any system which proposes to turn over our industries to labor as a class, or to politics, or to politicians, must fail, if we believe, as compared with that system, that our capitalistic system is the essential method by which enough wealth can be produced to feed the nations, it behooves us then to take a step further, and make capitalism protect itself at its weakest point.

It is our credit system that produces wealth; it is our enforcement of contracts, it is the confidence that the investor has in the security of his investments, which is the foundation of our capitalist system. Not until our governments reached the point where they recognized contracts and enforced security of investments did we have our modern production of wealth.

It is an interesting fact about the large industries of Wisconsin, and I presume it is so with many others, that the business establishments in our state of any size worth while have fallen out from under control of our local business men and are now controlled by the financiers and bankers of the East. A great many, and the largest part of our big industries, our railroads, our manufacturing industries,

sometimes an entire industry, are now controlled from the East. In other words, modern business is controlled by absentees.

What is the method, then, by which the several states can bring home to this absentee control the importance and significance of this instability of employment? One of these large firms in a small town of fifteen thousand population during this recent period of overexpansion, brought in negroes from the South, brought in farm hands from the farms. They increased their force to about five thousand people. They had prospects of enormous profits. Then suddenly, without warning, they laid off practically five thousand men, to be taken care of by that small town of fifteen thousand people. There was no sense of responsibility on the part of that corporation to the people of Wisconsin, to the citizens and taxpayers, and no sense of responsibility to the working men whom they had pulled in from the farms and pulled in from the South. But, if we had had a system by which for every man taken on during this period of expansion the employer would have assumed a new liability of a dollar a day for thirteen weeks after he laid him off, then when he began to expand and draw in farmers and negroes from over the country and went to his banker for the necessary credits, a banker would obviously inquire whether he would be able to take care of those five thousand employees whom he had brought in from the outside.

The unemployment compensation law operates, then, on the absentee financial interests. It brings home to the investors and to the bankers who are the ones who formulate our labor policy and control our industries the importance of the public purpose which the State of Wisconsin or any other State must necessarily have in stabilizing employment.

The investor and the wage-earner are in much the same position. They are the two passive elements in society. The investor is not a business man. He may be a retired business man, but he is not a business man. He is waiting for the business man, stimulated by the prospect and risk of profits, to offer him a safe investment. And the working man is not a business man. Labor as a class cannot manage industry; individuals rising out of the working class can manage industry but they cease to be wage-earners—they become business men. Our system consists in having our industries controlled by those who, through the struggle for profits, rise out of the working class and show themselves able to manage industry and to give security to investors. It is important, now that the willingness of labor throughout our Western civilization needs to be encouraged, that, having established security of investments as the foundation of our capitalist system, we should establish security of jobs for the perpetuity of that system.

I do not say that unemployment insurance is alone enough to stabilize industry. There is needed

also a stabilization of the currency, that is, a stabilized price level. Yet if, at the time of the business expansion two years ago the employers, bankers and financiers had been faced by the responsibility of unemployment insurance, the expansion would not have been so great nor the collapse so disastrous. Furthermore, if unemployment cannot be wholly prevented, the Huber bill provides that the employer shall take care of a small part of the expense—one dollar a day for thirteen weeks. The laborer continues to bear the bulk of the cost. Unemployment is already a huge cost on laborers and communities that must support the unemployed. Unemployment insurance is a means of better distributing the cost —not a means of increasing the cost. But it accomplishes the great purpose of bringing home to the bankers, the financiers, the absentee investors, who control and make their profits out of modern industry, the responsibility of capitalists for the same security of the job which the nation and the state already obtain for them in the security of their investments.

CHAPTER V

THE COÖRDINATION OF PRODUCTION AND MARKETING

Lionel D. Edie

THE process of transition to a business era of moderate cyclical changes and of reasonably stable prosperity is a matter of change in fundamental economic policies. The extremes of prosperity and depression to which business is accustomed must be understood as the natural and the inevitable outcome of the basic business policies of the nation. These basic business policies are the status quo in industry, and as the status quo they have the force of custom, habit, tradition, and fixed institutions. A business system fitted to a purpose of stabilization is attainable only through a process of gradual and comprehensive evolution in fundamental economic policies. There is reason to believe that such a fundamental change is already definitely under way,—in fact, it does not seem inaccurate to describe the current decade as an era of gradual transition toward business stabilization.

An indispensable part of the technique of business stabilization is the proper coördination of two

great branches of economic activity—production and marketing. Professor F. W. Taussig introduces his analysis of crises in this way: [1]

"Two great sets of phenomena will be considered —industrial crises and financial crises. It would perhaps be more accurate to say, not that two sets of phenomena will be considered, but that two phases of one and the same phenomenon will be. The industrial and financial collapses are closely connected."

The present chapter on production and marketing concerns itself chiefly with the industrial phase of the phenomenon. Of this phase Taussig makes this further observation:

"Remedies or at least palliatives for the financial panic are easier to find than those for the larger cycles of industrial depression. For the grave evils which flow from the industrial aspects of the crises it is much harder to find a remedy." [2]

A similar distinction is made by Governor W. P. G. Harding of the Federal Reserve Board, viewing the problem from the standpoint of practical finance:

"Recent events emphasize the fact that the Federal Reserve System can neither produce nor neutralize economic forces, but can only endeavor to moderate their ruthless effects on the economic fabric of the country."[3]

Professor Melvin T. Copeland stresses the signifi-

[1] "Principles of Economics" (1913 ed.), Vol. I, pp. 400, 425.
[2] *Ibid.*, Vol. I, pp. 400, 425.
[3] Federal Reserve Bulletin, 1921, Vol. 7, p. 671.

cance from the standpoint of business administration of the same industrial forces:

"I take it that our business depressions are due fundamentally to unbalanced production and distribution. From time to time too great a strain is placed upon a portion of our productive facilities with the result that our whole business machinery is thrown out of gear. Although crises are manifested most strikingly in the financial field, which serves to bind together the whole business world, they have their roots and causes in industrial conditions." [1]

This industrial phase of cycles, the general unbalancing of production and distribution, has one of its main causes in the tendency of production to become decreasingly efficient as prosperity advances toward a peak. The operating efficiency of industry is subject to severe fluctuations which act as basic causes for the downfall of prosperity. As observed by the President's Conference on Unemployment in 1921:

"The peak periods of boom are times of speculation, overexpansion, extravagance in living, relaxation in effort, wasteful expenditure in industry and commerce, with consequent destruction of capital. The valleys are marked by business stagnation, unemployment, and suffering. Both of these extremes are vicious, and the vices of the one beget the vices of the other. It is the wastes, the miscalculations, and the maladjustments grown rampant during booms that make inevitable the painful process of liquidation."

[1] Federal Conference on Business Reporting, February 22, 1921; also *Quarterly Journal of Economics*, Vol. 29, p. 562.

It is idle to expect a genuine degree of stabilization of business until operating efficiency can itself be reasonably stabilized. As business has been accustomed to run, it has been painfully true, as Herbert Hoover remarks, that "half our trouble in industrial crises runs back to the necessity of squeezing the waste out of industry."

How great this waste and inefficiency is cannot be ascertained with close accuracy. It varies sharply from industry to industry and from plant to plant. The effect upon the total volume of production is summarized from elaborate statistics of production by A. C. Miller of the Federal Reserve Board as follows:

"Beginning about midyear, 1919, and extending to the end of the year, there was a pronounced expansion of business accompanied by great speculative activity involving commodities as well as securities. Increased activity of business (rapidity of turnover) and rise of prices were the important factors in this development. The index of the physical volume of production (for manufactures) shows no noteworthy change during this interval." [1]

The almost furious industrial energy of a boom period spends its excesses in wastes and inefficiencies, in speculation and extravagance, and fails to result in anything like a proportionate rise in the country's total production of actual goods. If the efficiency of management were stabilized the hectic efforts of

[1] *Annals of the American Academy of Political and Social Science*, January, 1922, pp. 144, 149.

great prosperity would be unnecessary, and if enough concerns were capably managed all of the time, a major step toward the prevention of violent depressions would have been taken.[1]

For this purpose, the average business needs some fairly definite index of managerial efficiency. Such an index must provide the business executive with a picture of his costs of doing business, so that he can know when a particular item of cost is becoming excessive, how large a waste is involved, and the phase of the business organization which is suffering from the conditions of inefficiency. Probably industrial engineers would almost without exception agree with M. L. Cooke that "the cost factor is the best measure of performance known." [2] There is no doubt in the minds of progressive and capable managers of the soundness of E. N. Hurley's assertions that "intelligent cost accounting lies at the basis of efficient management" and that "inefficient practices in our industries . . . are almost invariably due to lack of adequate information." [3]

As a matter of actual fact, industry at large is deplorably remiss in its utilization of an adequate cost index of managerial efficiency. Probably the most competent body of authority to estimate this de-

[1] See *Review of Economic Statistics*, September, 1920, and February, 1921; also *American Economic Review*, March, 1921, and Supplement, March, 1922.

[2] *Annals of American Academy of Political and Social Science*, November, 1919, p. 205.

[3] "The Awakening of Business," pp. 3, 25.

ficiency in American industry is the Federal Trade Commission. Before and during the war this Commission made elaborate and comprehensive studies of the extent to which cost systems are applied in industry. In 1916, the Chairman of the Commission, E. N. Hurley, found as the result of a survey of 260,000 corporations that "only ten per cent of our manufacturers and merchants know the actual cost to manufacture and sell their products; forty per cent estimate what their costs are; and fifty per cent have no method, but price their goods arbitrarily." Mr. Hurley therefore declared: "The inadequacy of cost accounting systems in American factories is astonishing. Better methods of cost accounting is the first and greatest need of American manufacturers to-day. It underlies all the needs." [1]

Some progress was made in the direction of better cost accounting during the war period. However, the Chairman of the Federal Trade Commission in 1919, W. B. Colver, reported that as a result of cost studies made in the main industries of the country, with an investment value of $20,000,000,000, the Commission had found "frequent and great deficiencies in the accounting methods employed by mining and manufacturing concerns and especially in cost accounting methods." [2] In 1921 the Committee on the Elimination of Waste in In-

[1] *Ibid.*, pp. 3, 15; *Engineering Magazine*, Vol. 51, pp. 322-25.

[2] *Annals of the American Academy of Political and Social Science*, Vol. 82, pp. 301-5.

dustry, appointed by the Federated American Engineering Societies, reported: "The majority of the industrial plants studied lack a knowledge of costs and have no cost control. Therefore there is no adequate method of judging fairly and accurately when improvements are needed and when waste is occurring." [1] Although this deficiency is apparent throughout industry, it is most glaringly in evidence among the smaller concerns. Inasmuch as there are upwards of 300,000 of these smaller establishments in American industry, a failure to apply some cost index of performance to them presents an almost insurmountable impediment to the maintenance of proper efficiency in American business management.

Numerous influences are at work to transform the nation's business gradually to a better basis of cost control and of stable efficiency. The Government's War Administration extended modern cost accounting principles to a considerable proportion of the basic industries. Numerous investigations of private industry by the Federal Trade Commission to aid in price fixing and in profiteering control, drew the attention of business managers to their need for improved cost measurements. The Interstate Commerce Commission law and the Packing Control law made provision for more uniform accounting methods than have hitherto prevailed in transportation and food supply industries. The educational

[1] "Waste in Industry," p. 13.

efforts of commercial and industrial associations are not without tangible results. The banks of the country are to an increasing degree insisting that corporations desiring credit shall be able to present adequate statements of costs and operating efficiency before they can secure loans to carry on their business. One of the strongest influences exists in present-day trade associations. All these agencies are conducive to better control of efficiency and costs, but, in spite of their efforts, industry is widely lacking in the fundamental cost index of performance.

The present lack of control of managerial efficiency arises not merely from the fact that so large a part of American industry is without a cost system, but also from the fact that even where cost accounting is carried on, it is not used in such a form as to serve as a means of control of operating efficiency. Cost records which are merely records of past events are scarcely worth the expense of collection. An effective cost system should point the way to economies which competent executives may carry out in action.

For such a purpose, cost sheets should furnish the basis for comparisons from month to month and year to year of unit costs for labor, material, and other detailed phases of business operation. Major and minor executives are thereby in a position to know what the costs are—high or low—and why they are high or low, and how to go about reducing them

and maintaining them at efficient levels.[1] A second feature of effective cost systems is a certain degree of uniformity throughout a particular trade or industry. It is this feature which is heavily stressed by trade associations. Uniform cost accounting in a given trade enables the individual business to make comparisons with its competitors, and leads to a reasonable stabilization of prices in the trade on the basis of known cost relations. A third modern cost feature is the calculation of a standard cost based on normal operations. Deviations from this standard come readily to the attention of executives, and can therefore be subjected to the proper form of control and correction. The approximately accurate prediction of normal costs comes within the realm of the practical, and is a noteworthy aid in fundamental business planning. A fourth cost principle, at present all too limited in its use in American industry, is the allocation of overhead burden on the basis of actual production rather than on the basis of full capacity production. A heavy overhead burden of cost continues when a business is partly closed down by cyclical depression or seasonal slackness. The overhead of an idle plant, instead of being added to the cost of current production, is charged in the best modern practice to profit and loss or is met out of a reserve account. Hence the cost of idleness is met out of the liberal earnings of boom times, in-

[1] See address by W. B. Ferguson, Society of Industrial Engineers, March 24-26, 1920, p. 217.

stead of being so placed as to increase the cost and consequently the price of the commodities at the time when demand is low and when prices ought to be kept correspondingly low. The National Association of Electrical Manufacturers, the United Typothetæ of America, and other leading manufacturers' associations are coöperating with the industrial engineers in promoting these cost accounting methods which equalize the cost fluctuations of the business cycle.[1] Cost systems including these features offer an "index of performance" which aids vitally in stabilizing operating efficiency.

Fundamental though adequate cost information may be, nevertheless the utmost that it can do is to serve as an index of conditions. It may disclose what is wrong, but the constructive righting of the defect can come only as the business executive uses the information to adopt improved methods of management. Inefficiency in management is to a large degree attributable to a state of mind on the part of the management. Only a mental desire to adopt modern managerial technique, and a standard of managerial ability and outlook suited to the proper direction of that technique, can make use of cost data actually to control operating efficiency and to stabilize management. When business is overwhelmed by the irresistible optimism of a period

[1] See *Factory*, April 15, 1921, pp. 947-952; L. V. Estes, Address before Chamber of Commerce of the United States, April 27, 1921; W. N. Polakov, *Factory*, April, 1922, pp. 400-3; J. H. Jackson, *American Economic Review*, June, 1922, p. 296.

of prosperity, it is easy to forget the importance of economy. When depression comes, the great watchword is economy, and under the stern compulsion of necessity, the business mind desperately slashes at the costs of doing business in a most unscientific manner. It is difficult indeed to stabilize economy of management except as the mind of management itself is made less susceptible to the fluctuations of business conditions.

The technique of operating economy is available for managers who are minded to make use of it. This technique is not a perfected body of methods, but its processes are sufficiently demonstrated and verified to be of indispensable value in maintaining operating efficiency. Moreover, it is the subject of constant experiment, expansion, and discovery, and offers increasingly effective principles of control. In its scope, this technique covers the control of physical conditions—plant, equipment, tools, environment, physical processes, materials; the control of human relations—incentives, discipline, loyalty, representation in management, wage policies, efficiency, interest in work; and the control of outside economic relations—cyclical and seasonal business fluctuations, price movements, foreign trade conditions, general tendencies of demand and supply, and the like.

The technique of control over physical conditions has been built up by scientific management and the engineering professions. The technique for human

relations has been through its initial developments in personnel administration and employment management. The technique for outside economic relations is being developed through the interpretation of modern business statistics.

Inasmuch as industry is keenly sensitive to fluctuating labor costs, special analysis of this factor is desirable. Such costs fluctuate mainly because of unstable labor efficiency or of unbalanced relations between wage rates and price levels. During periods of prosperity, labor becomes decreasingly efficient in industry as a whole. Corporations find it necessary to employ a larger and larger number of laborers to perform the same amount of service. Soldiering on the job becomes common, restriction of production becomes widespread, incentives to good workmanship lose their hold. But when depressions come, workers are driven to more strenuous effort by the fear of being discharged. The bitter discipline of unemployment drives labor for the time being to better efficiency. Later, as prosperity returns, the same cycle of inefficiency accompanies the business movement. All this is descriptive of the general industrial experience.

But in the midst of the general complaint of labor inefficiency during the culmination of the period of prosperity in 1919-20, there were numerous exceptional companies which reported that their labor costs were steady, that efficiency was satisfactory. In an address in 1920 as President of the American

Society of Mechanical Engineers, F. J. Miller gave his observation of such exceptional concerns:

"It is not true that production has fallen off everywhere. There are establishments in America where production per employee is now greater than before the war and many of them in which it is as great."

It is a safe estimate that approximately ten per cent of American employers have attained some degree of control over the cyclical fluctuations of labor efficiency. The technique of such control is contained in the recently developed science of human relations and personnel administration, and is built upon the principle that "the management of the personnel of industry should be carried on in a no less thorough and scientific manner than the management of physical problems of production." [1]

A proper balance between wage rates and price levels is attainable by the use of suitable personnel policies. Forms of wage payment which constitute financial incentives to steady effort are available. Under ordinary conditions, prosperity witnesses reckless wage advances, and depression witnesses just as reckless wage reductions. In the majority of

[1] Report in 1922 of the Committee on Industrial Relations of the New Jersey State Chamber of Commerce. This matter is treated in detail in the chapter of the present volume contributed by Walter Dill Scott, and also in a portion of the chapter contributed by Henry S. Dennison. The subject is covered by studies by the National Industrial Conference Board and by numerous recent books on industrial relations and personnel.

American industries there has been no definite scientific standard for wage adjustments, and even if employers could formulate wage rates that ought to apply, they have commonly found it impossible to carry their ideas into effect except by a bitter conflict with labor. Experiences of recent years have brought out numerous large and representative establishments which have been able to make peaceful and scientific wage adjustments, both during rising and falling price periods, by forms of employee representation in industry. Where wisely handled, the principle of representation has worked toward this end in both union and non-union shops, and in combinations of the two.

During the period from 1920 to 1922, the open shop movement ran a vehement course in American industry, and no doubt part of its effect was to break up some of the fixity of labor conditions. However, if the sequel to the open shop movement is non-representation by labor in industrial issues of direct importance in their lives, the industrial situation does not stand improved in any substantial way. Control through labor representation has demonstrated its efficacy, and has both kept wage advances in proportion to price advances and effected wage cuts in proportion to price reductions. Such a policy of industrial control is quite the opposite of a widespread policy of attempting to secure large economies during hard times at the expense of labor. Looked at in a broad way, what is at stake is the stabilization

of the proper balance between labor prices and all other prices which enter into the maintenance of business equilibrium. The means of control toward this end, looked at in a similarly broad way, is a body of flexible principles of industrial representation which embody constitutional government in industry. The labor movement of recent years has been strongly in the direction of an "encroaching control" over various industrial matters; and progressive employers, both in the United States and in England, have found ways and means for devoting this outburst of human spirit to steady industrial efficiency. The stabilizing of the labor factor in industry by such a process is indispensable to a general stabilization of business.

The general technology of stable internal efficiency and economy is a prerequisite to the achievement of control over the business cycle. Fundamental as this internal managerial control is, it nevertheless is of no deeper importance than an intelligent adjustment of the individual business policy to the basic economic movements and conditions of the whole outside business world. But these outside factors, comprising such items as price movements, volume of production, credit conditions, new construction, employment, changes in demand, are of such immense complexity that to interpret them and adjust business policy to them is a most difficult task. Inadequate information on such factors has in the past compelled business to guide its policies by much loose

guesswork through a maze of uncertainties. "The business cycle," writes Professor E. M. Kemmerer, "thrives on uncertainty. The better it is understood and the more widely diffused is the knowledge concerning it, the less harmful it will be."

The vast complexity of general economic facts requires analysis, and the means of analysis is contained in modern statistical methods. As stated by S. A. Lewisohn, "Progress in controlling economic forces depends largely on improvement in methods of obtaining data and using it. We are just now beginning to realize how important to our civilization is the science of statistics." [1]

The purpose of such economic data is business planning. The science of statistics furnishes the material for prediction and forecast. Prediction in itself is no new thing in the business world. But prediction that gets beyond loose guesswork and general "hunch" is decidedly new, and it is this new kind of guesswork, based upon more adequate and better analyzed data, which follows from the modern business method. Business men have been notoriously susceptible to the personal whim and haphazard intuition of certain leaders in their midst,—men who have freely expressed their opinions about the future course of business conditions. To look backward upon the flood of such personal prophecies is to witness a record of exploded prognostications.

[1] *American Labor Legislation Review,* March, 1922, Vol. XII, pp. 42-4.

"There is nothing drearier," comments Carl Snyder, "than to go back and read the kind of stuff that is printed year after year, in the way of forecasts and predictions and current explanations of current events. It is certain that, if we go back over the last two years and no more, it would be difficult to find anyone who had any kind of an idea of what was going to happen." [1]

Business information, in order to become valuable, must enable business men to anticipate the future with substantial accuracy and certainty. The subject matter of business statistics can be presented in the most concrete and definite way by citing as illustrations certain types of reports which have been already worked out. There are hundreds of bureaus and boards, private and official, engaged in giving out reports on particular fields of economic data. But agents that are primarily significant are those which organize in a comprehensive manner broad sections of information. Through these boards, masses of piecemeal information are interpreted and correlated. This digested material provides the finished, statistical product, in a form which can be used in formulating business policy and in planning for the future.

The Harvard Committee on Economic Research issues a *Review of Economic Statistics* which contains important statistical information of this type.

[1] Bulletin of the Taylor Society, Vol. VI, No. 5, October, 1921, pp. 183-4.

The *Review* provides an index of general business conditions, evolved from three groups of business barometers, as follows:

Group I: SPECULATION

1. Bank clearings of New York City
2. Average price of industrial stocks
3. Average price of railroad stocks
4. Average price of railroad bonds
5. Shares traded on New York Stock Exchange

Group II: BUSINESS

6. Bank clearings outside of New York City
7. *Bradstreet's* Index of Wholesale Prices
8. United States Department of Labor Index of Wholesale Prices
9. Pig iron production
10. *Bradstreet's* business failures
11. Imports

Group III: MONEY

12. Interest rate on 60-90 day paper in New York
13. Interest rate on 4-6 months paper in New York
14. Loans of New York City Clearing House Banks
15. Deposits of New York City Clearing House Banks
16. Dividend payments

Also, the *Review* provides indices of the physical volume of production of agriculture, mining, and manufacture, and reckons an "estimated normal" of production in the various lines. A general index of the volume of manufacture month by month is compiled from the following eight important groups of industries: (1) iron and steel; (2) lumber; (3) paper; (4) leather; (5) petroleum; (6) textiles; (7) foodstuffs; (8) tobacco. Indices of the volume of manufacture are developed for each one of these

industrial groups, and these eight group indices are in turn combined into the index for manufacture as a whole. Other salient features of the *Review* are statistical studies of the relations between individual lines of industry, of the fluctuations of price movements in various branches of economic activity, and of financial factors in business control.

A somewhat similar form of statistical forecasting is undertaken by the agency headed by Roger W. Babson. The Babson business barometers are prepared from the following twelve subjects: (1) immigration; (2) new building; (3) business failures; (4) bank clearings, exclusive of New York City; (5) *Bradstreet's* index number for commodity prices; (6) surplus reserves of the New York Clearing House Banks; (7) foreign money rates; (8) domestic money rates; (9) conditions of crops; (10) idle cars; (11) political factors; (12) stock market conditions. These twelve factors are arranged in three groups of four subjects each, comprising mercantile conditions, monetary conditions, and investment conditions. A summary of the index figures for the twelve subjects is made and is used as the basis for a "Composite Plot." The "Composite Plot" rests upon the theory of Babson that in business, as in the physical sciences, action and reaction are equal, and that the summary index figure measures business action and reaction so accurately that it is possible to foretell the amount of depression which will compensate for a preceding period of prosperity.

A system of business barometers compiled by J. H. Brookmire obtains an index of business conditions from the following subjects: (1) total bank clearings of United States; (2) bank clearings exclusive of New York City; (3) commodity prices; (4) railroad gross earnings; (5) new building; (6) pig iron production; (7) pig iron price; (8) price of Bessemer billets; (9) unfilled orders of the United States Steel Corporation; (10) average price of twenty railroad stocks; (11) average price of twelve industrials; (12) banking and credit data.[1]

A somewhat different type of business reporting is conducted by the Federal Reserve Board. H. Parker Willis, Director of Analysis and Research for the Board, states that in this work, "the following distinct lines of effort have been pursued:

"1. To follow, analyze, and explain all sets of legislation having a direct bearing upon the credit, banking, and business situation.

"2. To obtain from as many sources as practicable actual current monthly statistics of the volume of representative commodities produced and placed upon the market.

"3. To obtain in the same way accurate state-

[1] For explanation and criticism of these business barometers, see Warren M. Persons, "Indices of General Business Conditions," and article in *American Economic Review,* Vol. VI, pp. 739-69; also Melvin T. Copeland, *Quarterly Journal of Economics,* Vol. 29, pp. 522-62; Roger W. Babson, "Business Barometers for Forecasting Conditions"; J. H. Brookmire, *Moody's Magazine,* 1913-1914, especially January, 1914, pp. 8-9; J. H. Hull, "Industrial Depressions"; D. F. Jordan, "Business Forecasting."

ments of the movement of commodities from points of storage or production to places of marketing.

"4. To obtain in the same way accurate figures representing the rapidity and extent of the use of the credit mechanism of the country.

"5. To obtain in the same way reliable data concerning prices and rates of exchange.

"6. To obtain, analyze, and explain reliable and inclusive data showing the movement of our foreign trade, not only in the aggregate but also in relation to the individual countries.

"7. To obtain in the same way accurate and trustworthy reports concerning rates of discount and interest.

"8. Generally, to secure from foreign sources data parallel to those domestically obtained and when this is not possible, then to obtain reliable information of a more general sort representing the views of local observers concerning conditions prevalent in these foreign countries." [1]

The monthly data of the Federal Reserve Board is supplemented by weekly and daily statements referring to loans and discounts, reserve ratios, gold and cash reserves, debits to individual account for banks in leading cities, conditions of the gold settlement fund, and related financial data. In addition to the bulletins of the Federal Reserve Board, there are bulletins published by each district Federal Reserve Bank, containing much data of a general scope but primarily data on credit and business conditions

[1] Conference on Business Reporting, February 22, 1921, pp. 66-85.

in the particular Federal Reserve district concerned. The Federal Reserve Bank of New York, for instance, publishes a monthly review presenting information on credit conditions, savings bank deposits, the bill market, commercial paper, stock market money rates, stock market trading and clearing operations, the bond market, the United States Government securities, new financing, gold movements, foreign exchange, foreign trade, world and domestic wholesale prices, cost of living, production of basic commodities, amount of wholesale and retail trade, commodity stocks on hand, wages and employment, volume of building, construction cost, business failures, and railway and freight traffic.

The United States Department of Commerce has developed a supplement to commerce reports, in the nature of a "Survey of Current Business." This survey is "designed to present currently each month a picture of the business situation by setting forth the principal facts regarding the various lines of trade and industry. The facts are arranged so as to give comparisons with previous periods; and to facilitate comparisons between the various items, index numbers have been calculated showing the relation of any month to a base period, usually the monthly average for 1913." [1] The figures reported are very largely those already in existence. "The chief function of the department is to bring together into one place these data which, if available at all, are scat-

[1] "Survey of Current Business," April, 1922, Introduction, p. 3.

tered in hundreds of publications. A portion of these data is collected by Government departments, other figures are compiled by technical journals, and still others are reported by trade associations." [1] The tables of comparative index figures are "Business Indicators,"—that is, they "reflect the present tendency in each item," and so "give a basis for business judgment." [2] For the purpose of comparison with a previous more or less normal period, all items, so far as possible, are related to such a period by index numbers.

This base period is 1913 where figures are available, otherwise usually 1919. The major groupings of the "Business Indicators" are: production of basic commodities, stocks of goods on hand, prices at wholesale, retail, and the farm, business finances, banking data, transportation, and distribution measured by value of imports, exports, and domestic sales. Some statistics on labor, employment, immigration, wage movements, and the like are prepared. For some commodities, figures of consumption are given, and for some, the volume of unfilled orders. Special subjects of information are introduced as they become available.

It is noticeable that some duplication of data takes place between the various reporting organizations, but in the main their several contributions are individualized enough to be distinctive contributions

[1] *Ibid.*, May, 1922, Introduction, p. 1.
[2] *Ibid.*, May, 1922, p. 3.

to the needed stock of business information. Although the reports that have been listed here are among the most comprehensive and inclusive, they are not by any means the only reports that have value in business planning. Certain financial, commercial, and trade journals, such as the *Commercial and Financial Chronicle,* the *Annalist, Bradstreet's,* the *Iron Age,* or the *New York Journal of Commerce* contribute special items of information. A large number of trade associations develop information applying intensively to individual lines of business. Government Departments, Federal, State, and Foreign, provide data related to business conditions within their respective jurisdictions. Banks in the larger cities maintain statistical departments and issue at regular intervals summaries of financial and commercial data, and analyses and forecasts of industrial movements. Numerous of the larger corporations in manufacturing and distribution maintain statistical experts to collect data having special reference to their particular activities. The supply of business statistics is miscellaneous and voluminous, and in greater or lesser degree covers almost every phase of modern economic activity.

Although the quantity of business information is impressive, nevertheless there are many requirements of useful statistical information which are not supplied. One such requirement is greater adequacy in the scope of statistical data. Certain of the more basic lines of production have adequate re-

porting facilities, but a large number of important industries do not as yet have the organized facilities for supplying the needed data. Moreover, there is for the most part a deficiency of information as to stocks of raw materials and finished products on hand. More data on the relations between price movements in various lines of economic activity is necessary. More comprehensive reports on sales, purchases, and stocks on hand in the chief branches of the wholesale and retail trade are desirable. Manufacturers and wholesalers should be the sources of information about such credit conditions as accounts and notes receivable, accounts and notes payable, collections, and supplementary information.[1] Thorough information on unemployment, wage levels, and other labor factors is not available. Records of the activity of the 20,000 banks not members of the Federal Reserve System are needed for fuller data on credit conditions. Clearly the scope of business statistics needs wider extension.

A second requirement of useful statistical information is a greater refinement of the technique of analysis of statistics. A primary purpose of the Harvard Committee on Economic Research has been "to contrive a method of handling business statistics which will make it easy to determine the significance or lack of significance of each item in indicating current conditions and possibly those of the immediate

[1] See Address by Melvin T. Copeland, before Federal Conference on Business Reporting, February 22, 1922.

future."[1] To measure the significance of trends and fluctuations of any business factor—as, for instance, pig-iron production or bank clearings—it was necessary for the Harvard Committee to devise methods for making due account and allowance for four types of fluctuations:

"1. A long-time tendency or secular trend; in many series, such as bank clearings or production of commodities, this may be termed the growth element;

"2. A wave-like or cyclical movement superimposed upon the secular trend;

"3. A seasonal movement within the year, with a characteristic shape for each series;

"4. Residual variations due to developments which affect individual series, or to momentous occurrences, such as wars or national catastrophes, which affect a number of series simultaneously."

The statistical technique involves the application of mathematical principles and methods. The ascertainment of coefficients of correlation, the computation of medians and of averages, the selection and weighing of series, the estimates of normal and of deviations from normal—these are suggestive of the problems of statistical analysis. A leading worker on the problem, M. T. Copeland, writes:

"All these indices need to be correlated in order to determine the real significance of each group. A good start has already been made in developing statistical methods for such correlation, but only

[1] Warren M. Persons, "Indices of General Business Conditions," p. 7.

the surface has been scratched. A vast amount of research work still remains to be done in this field." [1]

There seems to be ample ground for the judgment of David F. Jordan that "the time is close at hand when further barometric progress will be restricted to the refinement of the indicia which are already available." [2]

A third requirement of useful statistical information is that it shall be timely. To be of genuine value production statistics should be available ordinarily within ten days of the end of the month to which they apply. Dealing with this need, an introductory note of the "Survey of Current Business" states:

"Realizing that current statistics are highly perishable and that to be of use they must reach the business man at the earliest possible moment, the Department of Commerce has arranged to distribute mimeographed sheets twice each month to those subscribers who request them. The information contained in these sheets is also published in 'Commerce Reports,' issued weekly by the Bureau of

[1] Address before Conference on Business Reporting, February 22, 1921. On this general subject of statistical technique, see "Indices of General Business Conditions," by Warren M. Persons, and by the same authority an article on "The Construction of a Business Barometer" in the *American Economic Review,* Vol. VI, pp. 739-69; an article on "Statistical Indices of Business Conditions," by Melvin T. Copeland, in the *Quarterly Journal of Economics,* Vol. 29, pp. 522-62; "Elements of Statistics," by A. L. Bowley, and by the same authority an article on "The Index of the Physical Volume of Production" in the *Economic Journal,* Vol. XXXI, pp. 196-206; also, the volumes of *Journal of the American Statistical Association.*

[2] "Business Forecasting," p. 240.

Foreign and Domestic Commerce. The complete bulletin is distributed as quickly as it can be completed and printed." [1]

Much of the current statistical information is limited in its usefulness owing to the fact that by the time it is available, the business policies which it might have helped to shape have already been put into action.

A fourth requirement is that any single item of statistical information must be viewed, not as an isolated unit, but in the light of its multitudinous relationships. Economic history repeats itself, but never in identically the same form. It is the differences in the new situation which make business planning particularly difficult. The recurrence of phenomena in conformity with certain general principles gives rise to misleading predictions, unless the current situation is analyzed for those characteristics which deviate somewhat from the normal principles. Statistical studies of a single corporation, or of a single trade or industry, or of a single country are of value only in so far as they are used as steps toward comparisons and studies of relationships with other national and international factors.

A fifth requirement is adequate means of presenting the lessons of statistical information. The compilation of charts and of graphs is the most commonly used method. Graphic presentation of statistical data has the advantage that executives who

[1] May, 1922.

are not familiar with statistical tabulations can more readily grasp the meaning for business policy of the available data.

A further requirement is that the statistical information shall actually serve as the basis for shaping the business policy of individual establishments. A great proportion of business executives, when confronted with elaborate statistical studies of the present day, experience bewilderment. Business is flooded with the light of raw statistics, but large numbers of business men fail to realize in any adequate way what it is all about. The central problem is how to bring home to the individual business man the true meaning for his business of the available statistical information. Some of the larger corporations can employ experts to interpret the significance of data for their particular corporations, but the mass of smaller concerns do not have such expert counsel in their offices. A gradual process of education in shaping fundamental policies of production and marketing by the aid of statistical information is imperative. The end and aim of the whole process of preparing and developing the great mass of statistical material is so to alter and direct business planning that we may maintain prosperity for longer periods of time, and avoid as much as possible the crises and depressions which bring such widespread suffering and enormous waste. Statistics exist to be used.

One central problem in the accomplishment of this

purpose is an adequate control of the rate and volume of production. In order that production and marketing may be coördinated along lines of greater stability, it is necessary that production be planned for the future. Such planning necessarily applies to a lesser extent to agricultural production, since the element of climate and rainfall is dominant in that economic field. The planning of production applies mainly to the manufacturer and industrial producer. Those industries which involve long-time processes from raw material to finished product especially need to know the conditions of industry a long way ahead.[1]

A great part of modern production is undertaken months in advance of the time when the finished goods can be placed upon the market. Hence, to quote M. T. Copeland,

"Plans must be made and production regulated according to the conditions which such producers expect to encounter at a later time. If they err in judgment, they are placed at a disadvantage which may prove serious. The maladjustment which occurs during a period of crisis may be disastrous. If manufacturers and merchants can be forewarned, fewer will be caught unawares and the severity of the shocks will be alleviated." [2]

As rapidly as business statistics are able to predict with substantial certainty the future of business

[1] W. M. Persons, *American Economic Review Supplement*, March, 1922, pp. 10-11; also see Carl Snyder, Bulletin of the Taylor Society, October, 1921, p. 183.

[2] *Quarterly Journal of Economics*, Vol. 29, pp. 522-3.

conditions, the anticipations of the future made by producers will not only be more accurate and stable, but will tend to look farther into the future than has hitherto been the case.

It is frequently assumed that anticipatory production causes general overproduction, and that this factor in turn causes crisis and depression. However, the more careful studies of recent years indicate that what is at fault is not general overproduction but overproduction in certain individual lines, with the consequent unbalancing of industry. The total volume of production of the nation has an extreme variation of not more than ten per cent from year to year. The national output as a whole does not vary greatly, but the output of individual lines of industry varies to a marked extent. As explained by Carl Snyder, "The variations in the business cycle lie perhaps as much as anything in a dislocation between the even pace in the different lines of industry —too rapid expansion in one direction, too little in another, so as to disturb the normal equilibrium. If there be overexpansion in this line or that, there comes inevitably overproduction in special lines, a period of crisis for these industries, unemployment, failures, and all the traditional phenomena of lack of balance." [1] The planning of production with a view to greater industrial stability rests upon a proper analysis of balance and equilibrium between various lines of production.

[1] *American Economic Review,* Vol. XI, pp. 72-3.

The pioneer studies of Professor Edmund E. Day have pointed to the conclusion that "The line of progress lies in the differentiation of data according to specific industries." [1] As a means of applying this "line of progress," statisticians and economists have made use of the concept of the "normal." The normal for each line of industry at any given time constitutes a standard against which a whole industry or an individual corporation can measure its own production and the general trend of production. The concept of what is estimated as normal, and at what proportion of normal a particular business finds itself, is indispensable as a mental implement in interpreting business information.

Normal production for the present or the future contains an element of normal growth. A comparison of business conditions in 1922 with those in 1913 is not a comparison with a normal standard for 1922. The normal production in 1922 must take into account the factor of growth since 1913. Intensive studies by independent workers have led to the common finding that the total volume of production of the nation has a normal yearly rate of growth of around three and a half to four per cent. This is approximately the annual rate of growth for the last thirty years. When production is undertaken a long time in advance of the market, it is vital that the anticipations of the managers of production be based

[1] National Conference on Business Reporting, February 22, 1921, p. 56.

upon an estimated normal of output for the period, rather than upon the false supposition that what was normal for some previous year will be normal for the year ahead. The normal rate of growth varies from industry to industry. The general rate of growth of total national output is not an index of growth for each separate industry. Each line of business activity has a distinct index of normal growth, not always a smooth and even upward line, but a line whose average from year to year has deep barometric significance.

"The information which is fundamentally vital," declares F. L. Lamson, "as a basis for planning sales and production is: 'What is normal in a given industry?' and 'What is the present production with reference to normal?' The answers to these questions will enable each concern to determine where it stands with reference to the whole industry. It is essential in the planning of purchases and production to know the consumption of raw material, raw materials on hand, the amount of finished product produced, finished product on hand, and the principal product sold or distributed during a given period." The proportion of normal at which a plant is running, Mr. Lamson further explains, "is the first fundamental fact that any manager of an individual plant needs to determine his own position in the industry. With his position known, he and his staff of executives can quickly determine whether changes in sales and production policy are necessary or

whether present policies are right and should be further forced. . . . It seems safe to conclude that if the industries of this country were managed with a knowledge of the true conditions in each, then supply would more nearly harmonize with demand." [1] Such data is of particularly great value during a period of marked prosperity, since it enables the forward-looking manager of production to retard his output in anticipation of the period of depression. When to accelerate and when to retard production are questions always vivid in the mind of management, and the data relative to normal production are indispensable to any adequate answer to the questions.

Moreover, to be in proper relation to normal production, any individual industry must be in proper relation to a normal balance with other industries. David F. Jordan stresses the fact that "stability in business conditions depends upon uniformity of production in all lines. From a barometric standpoint, industrial production is too large or too small, not by comparison with productivity at a preceding time, but in relationship to existing conditions throughout the commercial world. Industry should keep pace with agriculture, with conditions abroad, and with the money market." [2] Conspicuous studies of the relations between various industrial lines of produc-

[1] Ninth Annual Meeting, United States Chamber of Commerce, April 27, 1921; see also address of M. C Rorty, at the same meeting.

[2] "Business Forecasting," pp. 92-3.

tion have been carried on by the Department of Commerce, by the Federal Reserve statistical divisions, and by the Harvard Committee on Economic Research. A careful summary of the results and of their significance is made by Carl Snyder as follows:

"If we wish to get rid of these cycles of industrial disturbance, we ought to know that the several industries are marching in step, in other words, what is the current rate of production in the several lines. . . By reducing each of the industries to a common denominator, we shall know by means of index figures exactly whether we are producing very much more pig iron or copper or sugar, or importing much more rubber or silk or wool, than the normal need. It was very striking, when we first obtained these indices, to note how clear was the overproduction in certain lines and the very large certainty that there would be inevitably a collapse in these special industries. In fact, from the relative height of the indices you could pretty well pick them off in the order in which the decline would and did come. . . . We have the clearest proof now, I think, that it is not very difficult to determine overproduction, and I will say, equally, underproduction. . . . I make bold to say that it is the balance of production that is alone of concern. Supposing we could have seen clearly just what was happening, it is pretty evident that the saner, shrewder, or more foresighted captains of industry would have slowed down their purchases, reduced production, used up their inventories as far as was feasible, and made preparations for a change. And if only this had been done on a broad enough scale and begun in sufficient time, it is evi-

dent that, instead of the rather violent collapse which we have gone through, we should have had merely a slowing down of a too rapid pace in industry, and after a sufficient time to make the needful adjustments, we should have gone ahead without any serious interruption with the industrial life of the country. . . . If we watched very carefully the rate of production in all the leading lines of industry, we need not have what is commonly called overproduction, or, in more precise terms, production out of balance." [1]

It is also important to note that the concept of normal implies what is normal for different stages of the business cycle. Prosperity, crisis, depression, and revival each has characteristics typical and distinct, characteristics which are normal for only that stage of the business cycle. The executive who plans for the future by watching business trends must know not only what stage of the business cycle he is in at any particular time, but also with some degree of approximation what stage of the cycle he is approaching and how soon the transition will come. As stated by Leonard P. Ayres, "If business is at about normal it makes a great deal of difference whether it is at normal on the way up, or at normal on the way down. Largely in proportion as the business man knows about this most important matter will he be able to conserve his gains and to guard

[1] *American Economic Review*, Vol. XI, pp. 70-4; and Bulletin of the Taylor Society, pp. 186-7, October, 1921.

against losses." [1] For this reason, this authority asserts, "The most important single piece of business information at any given time is that which tells of the existing status and development of the general business cycle." [2]

By taking into account the various factors which enter into the estimates of normal, it is practicable to project into the future an index curve of what general business conditions in a particular line of industry will be. Such projections are not absolutely accurate barometers, but when carefully calculated they are sufficiently correct to be a highly useful guide in business anticipations. Such projections can indicate with substantial accuracy what the approximate or average production of pig iron will be two or three years from now, and even, although with looser accuracy, what the production will be ten years from now. They can indicate what will be the country's needs for transportation for the years ahead, what the agricultural crops will average, what the demands for telephone equipment will be, and what will be the volume of international commerce in certain lines of goods. The statistical planning of the American Telephone and Telegraph Company illustrates the methods of projecting curves of future business conditions and movements. The executives of the company have estimates at hand

[1] Address, Ninth Annual Convention, U. S. Chamber of Commerce, April 27, 1921.

[2] *Journal of American Statistical Association,* Vol. XVIII, pp. 33-42.

five years ahead of time of the number of new telephones which it may be reasonably expected will be installed year by year.

On the basis of these estimates, the Company make plans well in advance for building, financing, and size of operations. Some of the careful statistical studies look twenty and thirty years in the future. Projections applying specifically to the telephone business require first a projection of general business conditions. Such projections aim "to show reasonable approximations of the direction and the extent of probable future movements." The Chief Statistician of the Company, S. L. Andrew, reports that "as a general proposition, they do this with marked reliability."

When the Company plans the trends of its own field of business, the projections cover not only the number of telephones to be installed, the buildings to be erected, the conduit cables to be needed, the central office switchboards to be placed, but the projections also include the principal items of revenues and expenditures and of assets and liabilities. Although projections are made five years in advance, they are made most intensively for one year periods and are carefully reviewed and rechecked month by month and year by year in order to keep them as accurate as possible. "In short, what we always have," reports the Chief Statistician, "is a detailed estimate of practically every item in the business for one year in advance and a background estimate of the

broad elements for five years in advance." [1] The interpretation of general statistical material by the inside organization of the telephone company suggests the methods which are necessary for the fullest utilization of business data. The mass of data must be brought down to the individual plant, and cast into forms which aid in planning the future course of operation. The ultimate purpose of compiling information can be realized only as the individual company translates the general language of statistics into charts, curves, and graphs for the guidance of its own policies.

The motive behind production is the ulterior one of profit. The objective is to market the product at prices which will allow a margin of profit. The price factor is, therefore, vital in coördinating production and marketing. The planning of production must at all times take into account as a basic consideration individual and general price movements. "The consensus of opinion of writers on business cycles," states Warren M. Persons, "is that such cycles are preëminently characterized by price movements, culminating in crises and reaching bottom in times

[1] For a summary of the policies of this company see article by Seymour L. Andrew, Chief Statistician, in *The Nation's Business*, April, 1922, pp. 27-9. On this general subject, see also address by M. C. Rorty, Chairman of Committee on Business and Production Indices, American Statistical Association, given at meeting of U. S. Chamber of Commerce, April 27, 1921; also article by Leonard P. Ayres, *Journal of American Statistical Association*, Vol. XVIII, pp. 33-42; also Carl Snyder, National Conference on Business Reporting, February 22, 1921, p. 39.

of depression." [1] The making of goods is conducted for the making of money, and the making of money arises from buying and selling at prices which leave a margin of profit.[2] Hence it is not an overstatement that "business prosperity depends on the prices of things, of services, and of money, and on the relation of each to the others." [3] But prices are not stationary quantities, fixed and certain, dependable and inflexible. Prices are almost always moving upward or downward, and these fluctuations constitute one of the great problems of business planning and control of cycles.

One such price fluctuation of the utmost importance is the general level of prices. For instance, from the Civil War period down to about 1893-1896, our general level of prices was falling, and then for the next quarter of a century the level was rising. This tendency was true also for the other nations of the world. It is a subject of dispute now whether the next quarter century will be a period of a falling or rising price level. The index number of wholesale prices, compiled by the United States Bureau of Labor Statistics, rose from 100 in 1913 to 272 in May, 1920, and declined to 148 in July, 1921. This violent fluctuation is traceable in part to war influ-

[1] "Indices of General Business Conditions," pp. 129-30 and 206-10.

[2] See W. C. Mitchell, "Business Cycles," Chapter II, and pp. 596-9.

[3] Leonard P. Ayres, Convention of U. S. Chamber of Commerce, April 27, 1921, p. 25.

ences, in part to the stages of the business cycle. The level of prices tends to rise with a period of prosperity and to fall with a crisis and period of depression. The difficulty in business planning is to ascertain with enough accuracy the date when the turn in the price movement will occur, and to estimate intelligently its sharpness and extent. No one foresaw the sharp and extreme fluctuations of the war period, the post-armistice year, and the depression period following.

"The pivot of our ignorance," declares Carl Snyder, "or, if you prefer, uncertainty, lies in our lack of positive knowledge as to the major forces which determine this general price level." [1] Until it is possible to forecast with greater accuracy these general price movements, it will be difficult indeed for business men to adjust their business policies to an objective of stabilization. The approximate predictions which are now available are of substantial use, it is true, but afford an inadequate basis for reckoning costs and sales prices, and afford insufficient data for a confident coördination of production and marketing policies. The broad problem of control of the price level is vital in the plan of stabilization. It is discussed at length in this volume in the contributions of Irving G. Fisher and Wesley C. Mitchell.

A second phenomenon of price fluctuation of pro-

[1] Joint meeting of Association for Labor Legislation and the American Statistical Association, December 28, 1921; see also Bulletin of Taylor Society, October, 1921, pp. 183-7, and National Conference on Business Reporting, pp. 38-41.

found importance in business calculation is the movements of prices of individual products and of different branches of economic activity. These individual price movements are disproportionate and so play a primary part in the dislocations of the business system. There are two distinct types of these individual price movements. The first is a long-time trend, in which the price of a single commodity becomes higher or lower in proportion to prices of other commodities over a period of twenty or forty years or more. Such price trends can be charted, comparisons made, and reasonably accurate projections drawn, so that business can make adjustments to the relatively slow long-time trends of individual price movements. The second type is the cyclical price fluctuation, in which different commodities rise and fall disproportionately.[1] Prosperity and depression contain great disparities in price relationships. The cyclical movements of 1919-22 illustrate these uneven price trends. Although the price movements of this particular crisis and depression are extreme in degree, they are similar in kind to general experience with cycles. Prices out of balance are a phenomenon parallel with production out of balance.[2] In various ways, unbalanced prices cause unbalanced production; in other ways, unbalanced

[1] See Warren M. Persons, *American Economic Review Sup.*, March, 1922, pp. 8-9.

[2] See address by B. M. Anderson, Jr., before National Association of Credit Men, May, 1922, reprinted in *Economic World*, May 27, 1922, pp. 729-30.

production causes unbalanced prices. It is not always clear, from present forms of analysis, which is cause and which effect. The following table measures the unbalancing of prices by giving the relative wholesale prices of all commodities and various groups of commodities for the month of May, 1921, as compared with the year 1913.[1]

(The base index number for 1913 is 100.)

All commodities	151	Chemicals and drugs	166
House furnishings	262	Foods	133
Lumber and building materials	202	Farm products	117
Fuel and lighting	194	Wheat	170
Cloths and clothing	181	Wool	123
Metals and metal products	138	Cotton	101
		Corn	98
		Hides	65

In the price recessions of 1920-21, it is conspicuous that prices of farm products suffered a particularly violent fluctuation. The result was diminished purchasing power among the agricultural sections of the nation, and hence diminished purchases of those manufactured products normally demanded in farming sections. To quote the Congressional Joint Commission of Agricultural Inquiry, "If the prices of all commodities rose in exactly the same proportion, the relative welfare of the producers of the different commodities would remain the same, notwithstanding the increase in the general price level, and the purchasing power of one group of commodities would

[1] Congressional Joint Commission of Agricultural Inquiry, October 15, 1921, pp. 40-41; see also W. P. Gephart, *Economic World*, April 22, 1922, pp. 546-9.

remain constant in its relation to all other commodities, but the prices of commodities do not rise or fall at exactly the same time." [1] During the business cycle, prices of many articles have already begun to fall while prices of many other articles are still moving upward. The break in price movements comes at different dates for different commodities. Intensive studies have been made by the Harvard Committee of Economic Research in developing data to show the relations between these irregular price movements, to discover which prices rise first and which fall first in the stages of the cycle, and how great the lag is between the fluctuations. The break in the prices of livestock came in July, 1919; of cloths and clothing in March, 1920; of metal products in April, 1920; of foods, in May, 1920; of Bessemer pig iron in September, 1920; of bituminous coal in December, 1920, and of anthracite coal in March, 1921.[2] When business is unable to anticipate with approximate accuracy the date of such price turns, establishments find themselves with huge stocks of goods on hand which must be sold at a loss. To the extent that business informs itself ahead of time of the price turns, it is possible to retard or accelerate production in such a manner as to stabilize its profit margins. The proper control of production programs tends to minimize the irregularities of price movements and to prevent the excessive disparities.

[1] Congressional Joint Commission of Agricultural Inquiry, pp. 34-5.

[2] *Ibid.*, pp. 60-1.

It is frequently true that prices are bid high in particular lines because the buyers are deluded through misinformation into believing that stocks of goods are limited. Fuller data on production, consumption, and stocks will tend to eliminate this misinformed buying and to eliminate unwarranted price movements. Informed guesswork is a steadying price factor, whereas misinformed guesswork leads to reckless speculation and excessive price swings. Another factor tending to steady the balance of prices is the increased stability in operating efficiency and operating costs discussed at the beginning of the present chapter. Political factors, such as tariffs, taxes, regulation of business, international policies, loans, and the like, affect the balance of prices by giving special advantages to certain lines of business or bearing down with the severity of heavy costs upon certain other lines. Greater control of the buying habits of the public is needed in order to maintain the price balance, since, during periods of prosperity, luxury and semi-luxury goods are in great demand in comparison with goods which do not cater to the temporary spirit of extravagance. It is broadly true that the maintenance of prosperity depends upon such a continuous balance between prices in the various lines of business as will maintain moderate and stable profit margins.

A third price phenomenon is the relative fluctuations in prices at different stages of the process from raw material to consumer. Certain generalizations

have been made as the result of comprehensive statistical studies, and although they are not to be taken as hard and fast rules, nevertheless they are valuable as indications of the general and probable trends of prices. First, as between wholesale and retail price fluctuations, wholesale prices tend to rise first and farthest, and to fall first and farthest in the respective stages of prosperity and depression. Retail prices are more fixed and stable than wholesale. Failure to realize that the full effect of a wholesale price increase does not take place at once in the retail market, but that it must take place eventually, is responsible for many miscalculations. For instance, in the fall of 1919, dry goods wholesale prices were advanced from twenty to forty per cent. "These prices were to have been reflected several months later in retail trade. Many bankers, merchants, and others failed to appreciate the additional strain that this sharp price advance would make upon the credit resources of the country. It meant that a large volume of trade would have to be financed at much higher prices than were current even in November, 1919. It was obvious that we did not have the credit resources to meet this condition, and a general business reaction was inevitable." [1]

Second, prices of labor tend to change more slowly than prices of commodities. Consequently, manu-

[1] M. T. Copeland, National Conference on Business Reporting, February 22, 1921, p. 7.

factured articles in which labor cost plays a large part tend to change their prices more slowly than do articles having a low labor content. Prices of salaries move still more slowly, and prices of rents tend to be slowest of all.

Third, prices of raw materials fluctuate more sharply than prices of manufactured goods. The wholesale prices of raw mineral products are more sensitive to the changes of the business cycle than the prices of raw farm, animal, or forest products. In general, the prices at the initial stages of the process of production change more quickly and more sharply than the prices toward the end of the process and near the consumer. A proper amount of lag and interval in these price movements is normal and harmless, but at each stage of the adjustment, influences are at work to exploit some advantage given by the price changes. These influences may be retailers trying artificially to hold prices up when wholesale prices have fallen, or manufacturers trying to pass the costs of inefficiency on to the buying public, or large-scale organizations endeavoring to exert monopoly pressure, or labor organizations exacting undue wage advances or resisting just wage reductions, or land owners profiteering because of a housing shortage. Such exploitation of price readjustments aggravates disparity in price movements and intensifies the waste and suffering of a period of depression. Moderation of this type of price adjustment and equitability at each stage and to each

interest are indispensable to stabilization of business.[1]

Fourth, price stability depends in large measure upon the policies deliberately prevailing throughout the business world. The policy of profits at all hazards is damaging. By exacting exorbitant profits in periods of boom and selling at a loss during periods of slump, great numbers of business men contribute to excessive cyclical fluctuations. Traditionally this policy is ingrained in the economic system, but it certainly is not irremediable; in fact, change is already noticeable, and to the extent that more and more business men see the advantage of self-restraint in prices and profits, a new and more stable attitude of mind may be brought to bear upon the situation. The importance of such a changed attitude and policy is forcefully stated by Governor W. P. G. Harding of the Federal Reserve Board as follows:

"I think that we might do something to make our periods of depression shorter and the effects less severe, and that the best way to accomplish this is to exercise some self-restraint in boom times, avoiding extremes and keeping more nearly on a general level. I have in mind one important industrial corporation which in the fall of 1919 and the early part of 1920 did not advance the prices of its products to anything like the level that some of its competitors did. As a result, while this important industry, like all others, is feeling the effects of the present depression, it is in

[1] See B. M. Anderson, Jr., on "Right Prices," *Economic World*, Sept. 17, 1921, pp. 400-1.

a strong position financially and will not be obliged to cut its prices in anything like the same proportion that other concerns, which advanced to higher levels, are obliged to do. This example, if generally followed, would tend to check runaway costs and break the force of reactions." [1]

This policy of self-restraint is most influential when exercised by the large corporations. In most of the important lines of production, some one or possibly two large companies have a real power of leadership in naming the prices for the commodities sold. Lesser companies often wait for the influential company to name its prices and thereupon the lesser parties adjust their prices to that standard. It is a matter of record that "the large and ably managed combinations which control a considerable proportion of their industries have generally kept their selling prices more stable than prices had formerly been under competitive conditions." [2] It is notorious, on the other hand, that any number of corporations pursue price policies which are vividly described by such business phrases as "cut the melons as they ripen," or "come in for a killing." Price policies of this kind mean extreme instability and excessive maladjustment. They lead to temporary profit for certain individual corporations, but to permanent loss to the economic system as a whole and to the public. The situation is clearly described by Henry R. Seager in these words:

[1] *Factory*, September, 1921, p. 313.
[2] W. C. Mitchell, "Business Cycles," p. 462.

"The truth is, that in many of our basic industries, concentration of production in large units has progressed to a point which enables a comparatively small number of large corporations to control the industries.

"So long as a few business men are in a position to control the great industries, and so long as those business men honestly and sincerely believe that stabilized prices are to the best interest, not only of themselves, but in the long run, of the public, the penalizing of combinations will not deter such men from acting in unison, even without formal agreements to do so. And stabilized prices high enough to provide reasonable profits are to the advantage of the public as well as of producers. . . . We need the stabilizing influence of coöperation in business, and even in price determination, if we are to avoid the wastes and losses of the period when steel and our other great staples were alternately prince and pauper." [1]

During recent years, a notable attempt to carry forward organization and coöperation in business has been undertaken by trade associations, and economic associations of all kinds. The dominating motive behind the phenomenal growth of these associations has been described by Herbert Hoover as "the desire for greater stability." It is important to observe that trade associations are predominantly made up of the smaller establishments in business. Large-scale producers have facilities within their own organizations for gathering and interpreting statis-

[1] New York *Evening Post*, March 21, 1922.

tics, but the smaller producers are enabled to secure a similar service only by coöperating through trade associations. Secretary Hoover points out that, "Little business can only hope to be equally informed and make equal efforts to promote its welfare through trade association." [1] The uncertainties as to what trade associations may and may not do legally are not so great as to limit their usefulness severely. The tendency in some quarters to demand compulsory secrecy about prices and other business elements is inconsistent with the urgent need for greater stability in prices and business conditions.

The broad movement in economic life is in the direction of more business organization and coöperation, toward the end of greater stability. Business finds it necessary to endeavor to control those "price oscillations which prevent production and disturb industry." [2] The plea of Walter W. Stewart to economists deserves general cognizance:

"Buying power depends upon price and output, and a collapse of either—at the farm or in the factory—causes a breakdown in the exchange of goods. A proper organization of the vast system of markets and prices which stands between them and connects the farm and the factory would cause the products from these two sources to mutually and continuously support one another." [3]

[1] Address before Trade Association Conference, Washington, D.C., April 12, 1922.

[2] Walter W. Stewart, *American Economic Review,* Vol. XII, Sup., p. 43.

[3] *Ibid.,* p. 42.

In the treatment thus far of the uses of business information in stabilizing production and marketing, the intensive points of analysis have been production and prices. At various places, these considerations have necessarily dealt with questions of demand and of sales, but it is desirable to deal separately and directly with these marketing problems in order to give them adequate attention. "The crisis of 1920," writes Warren M. Persons, "like every other crisis, caught the great majority of business men unprepared. Purchasers were doubling and trebling orders with the object of securing deliveries of the normal amounts, sellers were boosting prices, expanding operations, and enlarging inventories. Salesmen in nearly all lines were confident that flush times would continue indefinitely." [1] Probable demand was disastrously miscalculated. Likewise, during depression, the majority of business men flounder in distress because they have no reliable forecast of the depths to which the market will go or of the time when a turning point will likely be reached.[2] No query is more important in planning business safely and steadily than the future course of demand. The instability of modern business arises in large measure from the unsuccessful guesses which business men commonly make on this factor. The most disastrous part of this delusive guesswork is witnessed as the

[1] *American Economic Review,* Vol. XII, Sup., p. 6.

[2] See, for instance, address of M. C. Rorty, Convention of United States Chamber of Commerce, April 27, 1921, p. 5.

peak of a period of prosperity approaches. Nearly everybody is sure that the utmost of production is necessary to meet the feverish demand, just at the point when the demand is in reality on the verge of collapse. The forecasting of demand has, as a primary objective, the forecasting of the time when demand will suffer the effects of the upward and downward movements of the business cycle. The indices of general business conditions and the laws of cyclical movements are available as guides for this piece of forecasting, and there is hope that the bitter lessons of the past will induce the preponderance of business judgment to give greater heed in the future to these demand warnings.

Cyclical movements of demand are interwoven with secular, seasonal, and residual movements. The secular trend of production has already been explained and in its nature corresponds to the secular trend of demand. The production of any single commodity can be traced over a period of years and a line of normal growth can be charted. Within limits, it is possible to project from this data the probable demand for this type of product months or years hence. Normal demand for each type of commodity follows a line of growth which ordinarily is regular enough to serve as a basis for helpful forecasting. Seasonal movements of demand are susceptible to definite measurement. The normal demand for a given product for any one month is not ordinarily one-twelfth of the yearly demand, but a

fraction of the yearly demand which represents seasonal variation, and which is fairly regular in corresponding months from year to year. Standardization of styles of product and simplification of production aid in controlling the coördination of production with seasonal demand. The residual demand movements arise from political events, strikes, wars, and uncontrollable or chance phenomena. Prediction of the effects upon demand from these causes is difficult over long periods of time, but offers a helpful measurement over brief periods.

The needs of buyers, although subject to the influences just mentioned, may well be studied as a distinct problem. Industries producing such articles as automobiles, agricultural machinery, or phonographs, find that the original demand when the goods are first introduced is superseded by a replacement demand, when the buyers of a country have been accustomed to the use of the article. This replacement demand is not large enough to equal the initial demand, and consequently can not give full-time work for the productive apparatus originally installed. The number of actual and potential users, the capacity of the industry for annual production, and the durability of the article are factors in this problem, and all are capable of useful statistical analysis. The heavy demand for articles that cater to extravagance and luxury comes with the waxing of prosperity, and tends to disappear during ensuing depression. Staples and necessities have a more

stable demand, in that such commodities as food and clothing are constantly needed. However, this stability of need is somewhat misleading, since at certain periods of the business cycle heavy stocks of goods are being accumulated. For some months, therefore, buyers' needs are largely met out of accumulated stocks instead of out of current new production. Knowledge of stocks on hand is, therefore, necessary for a judgment on probable sales.

The purchasing resources of buyers is a further important consideration. The incomes of various classes of the population fluctuate in response to changes in the general price level, changes in the equilibrium of prices of individual services and products, and changes in the equilibrium of prices and costs. The purchasing resources of the agricultural population were high during war prices for farm products, but these resources were severely reduced by the slump of farm prices in 1920-21 out of all proportion to other price declines. Wage levels, salary levels, profit levels fluctuate widely in accompaniment to the business cycle, and such fluctuations are reflected in a changed purchasing power for the groups concerned. Unemployment accentuates the weakened demand of a period of depression, because it cuts off the incomes and purchasing power of millions of consumers. The national mood of thrift during hard times and of extravagance during good times affects the volume of purchasing power that will be directed toward

particular commodities and services. The phenomenon known as "the consumers' strike" is not so much a change in potential purchasing power as in the fraction of that purchasing power which actually becomes effective in demand and sales. "It is easily possible," declares Lewis H. Haney, "to know for each industry the following factors affecting demand: Purchasing power of consumers, taste of consumers, indicated consumption, and the facts as to quantity sold in each market. Under the head of demand, it will be possible some day to rely upon an accurate statistical index of the purchasing power of consumers." [1]

The price expectations of dealers and consumers affect strongly the course of demand. When buyers expect that prices are going up, they tend to buy heavily; when they expect that prices are going down, they tend to buy lightly. The price expectation may be merely a bad guess, the effect of rumor or propaganda; nevertheless it has a material effect upon the time in the cyclical price movements when demand becomes heavy and when it becomes weak. A price advance which does not carry with it the

[1] *Administration,* January, 1922, pp. 72-9. An instructive illustration of this possibility is found in the work of the New York University Bureau of Business Research, under the direction of Professor Haney. This bureau has prepared trade barometers for the wholesale grocers of New York State. These barometers chart the course of monthly sales, the price of the product, the physical volume of the business, the consumers' purchasing power, and the future trend of the grocery business. "The whole is based on a study of the *causes* that affect the particular trade and location."

expectation that the price soon will be advanced still further does not stimulate larger buying. It is the expectation of the future course of prices which affects heavily the demand curve, and which should enter carefully into demand anticipations.[1]

Moreover, the scope of the market enters in important ways into the anticipation of demand. The purchasing power of foreign buyers conditions the demand for numerous and important American products. Economic, political, and psychological factors have a bearing upon the foreign demand. This type of demand affects vitally certain industries, and indirectly through them exerts heavy influences upon related industries. It is true that the total exports from the United States per annum average only from five to ten per cent of our total product, but the significant fact is that in certain lines of activity the export sales constitute a large and vital part of the total sales. For instance, we export from twenty to forty per cent of our wheat crop and about sixty per cent of our cotton crop. A failing in foreign demand for such individual products injures directly the industries which export heavily, but so sensitive are the interrelations of prices and the interdependence of all lines of business that indirectly the prosperity of nearly all business is affected.[2] Some commodities have a strictly

[1] See F. W. Taussig, *Quarterly Journal of Economics*, Vol. XXXV, pp. 394-411, especially pp. 396-9.

[2] See, for instance, the report of the Joint Commission of Agricultural Inquiry, Sixty-seventh Congress, House of Representa-

national market, but the national demand is not even for all sections of the country. Variations from section to section require minute analysis. In the above survey of demand anticipation, the effort has not been to include all factors which influence demand, for these are as wide and inclusive as all of modern civilization. On the contrary, the effort has been to outline some approaches to the problem of demand which aid in a better coördination between production and distribution and which contribute toward more stability in business.

The penalty of a miscalculation of demand is seen in its severest form at the end of a period of prosperity and the beginning of crisis or depression. A large part of producers and dealers have stocked up heavily with goods on the rising price market, hoping thereby to avoid the still higher prices which they see ahead. When the break comes they find it necessary to liquidate these heavy inventories, usually at prices which inflict severe losses. This speculation in commodities is not reprehensible because it is speculation, but because it is misinformed and ruinous speculation. The speculators in inventories commonly are caught in their endeavor to play the price movement to the last minute of the period of advance. The experience of business men who have planned their way successfully through periods of general liquidation in industry makes it clear that

tives Report No. 408, Submitted October 15, 1921, especially Part I.

the average dealer and producer invites disaster by trying to hold goods to sell at the very peak of prices. Also, it is generally unsound policy to wait on a downward price movement until the very bottom has been reached before enlarging the inventories of the business. The degree of caution which is conducive to stable profit margins indicates that large inventories should be liquidated safely in advance of the peak and break of prices, and that they should be expanded in depression without waiting for the utmost drop in prices. Moreover, business men have found that when they are caught on a downward market with heavy stocks, it is usually the best policy to dispose of the inventories promptly at a loss and reëstablish their current business on a basis of the new costs and prices prevailing. To carry large inventories of salable goods at one time and small inventories at another is sound business policy and contributes to business stability, provided business anticipates carefully the turning point in movements of price and demand and acts safely in advance of the extreme limit of rise or fall.

This selling policy is intimately related with the purchasing policy of business. The manufacturer and dealer constantly face the questions of when to buy raw materials and how much to buy. The general policy of making heavy purchases of raw materials or of stocks on a rising market and low purchases on a falling market is not unsound, but the faulty application of it to actual purchasing

policy has brought endless error and miscalculation. The danger of miscalculation is greatest near the peak of prosperity and the break in prices. The purchasing agent is able to reduce greatly the error of his calculations by a careful interpretation of statistics of production, prices, demand, stocks, and credit. For instance, numerous industries have proved it useful to chart price fluctuations, and to draw through the fluctuations a median line. The volume of purchases is graduated according as prices are above or below the median line. When prices are rising above the median line, the purchases are moderated to a relatively light amount, and when they become excessive above the median line, purchases are made "from hand to mouth" in order to avoid being caught with heavy supplies of high cost goods when the break in prices comes. On the other hand, when the prices go below the median line, the purchases are made in larger and larger amounts, with the view of carrying six months' or a year's supply. The advance supply to be carried need not be regulated mechanically by such calculation, but should be judged by accompanying considerations of the speculative habits in the industry, of railroad conditions, or of other factors. Such statistical guides are an effective check on individual opinions and expectations, and help to protect purchasers from falling victims of their own over-optimism or over-pessimism.

Knowledge of the purchases and stocks of raw

materials, of the manufactured product, and of dealers' stocks, helps to analyze a given industry at all stages from raw material to finished product. The rubber and pig-iron industries supply raw materials for automobile manufacturers and these in turn supply stocks to a mass of scattered dealers. Pig iron, harvesting machinery, dealers with farmers, make up a similar series. Wool, knit goods, wholesalers and retailers offer a similar series. Business men at each stage of the series find knowledge of purchases, price movements, stocks and consumption in all the other stages, of deep value in planning purchases and general policy. Narrowing of attention to an individual stage of the process from raw material to consumer prevents proper correlation of business judgment. Conspicuous among the concerns which suffer most from liquidation losses during crisis and depression are those which confine their knowledge of economic data too closely to their own limited field of business.[1]

Advertising policy backed by proper sales organization has important consequences for the stabilization of demand. The prevalent practice has been

[1] Numerous examples of companies which failed during 1920-22 to judge correctly their purchases and inventories were to be found in the rubber and steel industries. Companies which pursued a more stable policy in this respect might be named, such as the American Radiator Company, Hart Schaffner and Marx, Dennison Manufacturing Company, the Westinghouse Electric and Manufacturing Company, Adolph Lewisohn and Sons, Norwood Tire and Rubber Company, Joseph and Feiss Company. For descriptions of policy, see New York *Evening Post* articles, October 17 to November 10, 1921.

to advertise heavily as money came easily during waxing prosperity and to economize closely on advertising during hard times. In other words, at that period of the cycle, when demand is naturally strongest, business has spent large sums in advertising to intensify the demand still further. At the period when demand is very weak, and when every reason exists for stimulating it, business has cut the advertising schedule to the minimum. Numerous business men insist that this is the only practicable advertising policy, but it seems true that to a very large extent their point of view is determined more by the force of custom and tradition than by the real needs of the business situation. What the business situation calls for is intensive advertising to sustain demand during the slump when demand tends to die out, and moderate advertising during boom periods when demand is already heavy and companies are rushed with orders. Such an advertising policy tends to stabilize demand. The old policy aggravates the fluctuations of demand that are already excessive within the business cycle.

It is not intended, however, to assert that the principle applies in a mechanical way to all lines of business. There are unquestionably many lines of business in which advertising is at all times a very minor force in the creation of demand. There are others in which the elasticity of demand is not subject in any practicable way to advertising control. After due allowance has been made for such varia-

tions and exceptions, it remains true that the general principle, reversing as it does much of the advertising policy of business, is applicable to a very large proportion of industries and deserves much wider adoption. Two important corollary policies are involved. First, advertising itself is likely to be a wasted expense unless it is backed by a vigorous and aggressive sales organization. Advertising alone does not create demand; what it does accomplish of deep value is to pave the way for effective work by the sales organization. The second corollary is that such an advertising policy requires a system of reserves, set aside during prosperous years, to be appropriated for advertising purposes during those slump periods when every effort is needed to sustain demand.[1]

The problem of coördination has also to be viewed from the standpoint of the relation between permanent new construction and goods turned out for immediate consumption. The President's Conference on Unemployment in October, 1921, stated:

"In any analysis of our productive processes we can make a broad distinction between our additions to national plant and equipment, such as houses, railroads, manufactures, and tools on the one hand, and the consumable goods which we produce on the other. At the present time we increase our activities

[1] Instructive accounts of the experience of various companies working under this general policy, in one form and another, will be found in the issues of *Printers' Ink* and of *System* for the years 1921 and 1922.

in both of these directions at the same time and in their competition with each other we produce our booms." [1]

The construction of new buildings and of new equipment picks up toward the end of a period of depression and proceeds in large volume during the period of revival and growing prosperity. Toward the end of prosperity costs of loans, labor, and materials become so high that the rate of increase in volume of construction is checked. But it is only the rate of increase that is checked, for the actual volume of construction tends to remain large up to the peak of prosperity. With crisis and depression, construction falls off greatly. The productive equipment is greater than the demand for the goods turned out by it, and the maladjustment between the additions to capital and the consumers' demand makes inevitable the readjustment brought about by crisis and depression.

The desire to regulate and control the additions to national plant and equipment faces a complex array of difficulties. The distribution of savings and investments between various periods of the business cycle involves fundamental relations with the whole structure of the credit institutions.[2] However, vari-

[1] See also in explanation of this phenomenon F. W. Taussig, "Principles of Economics," Vol. I, Chap. 29; E. Jones, "Economic Crises," pp. 73 ff.; T. E. Burton, "Crises and Depressions," pp. 306-8; W. C. Mitchell, "Business Cycles," pp. 5-19, Chaps. VIII, XIV.

[2] See S. C. Schluter, *American Economic Review Supplement*, March, 1922, pp. 38-9; W. E. Lagerquist, "Investment Analysis,"

ous constructive measures of deep importance recommend themselves. The importance of planning government building by federal, state, and local authorities for periods of depression and of planning capital expenditures by public utilities such as the railroads on the same principle is discussed by other contributors to the present volume.[1] The planning of private construction, such as new plant or new housing, may well receive separate treatment.

Building statistics for the years 1919, 1920, and 1921 indicate the relative importance of various forms of construction. Business and industrial construction constituted approximately one third of the total value of contracts awarded in 1919 and 1920, and about one fifth of the total in 1921. Residential construction constituted about one third of the total value in 1919, less than one fourth of the total value in 1920, and more than one third in 1921. The two forms of construction combined constituted about two thirds of the total value of building contracts in 1919, about fifty-eight per cent of the total in 1920, and about fifty-eight per cent in 1921. For the three periods, therefore, the value of building for residential and industrial purposes ranged between three fifths and two thirds of the total value of all building.[2] It is, of course, true that the total volume of construction fell off sharply during the

Chaps. X-XI; W. C. Mitchell, "Business Cycles," Chap. VIII, and pp. 483-494.

[1] See pp. 164-167; 324-341.

[2] "Survey of Current Business," May, 1922, pp. 70-3.

depression of 1920-1921. If the year 1916 be taken as the base year, represented by the index 100, the building activity of the last nine months of 1920 would be approximately thirty-four.[1] The United States faces an extraordinary shortage in housing on account of the diversion of economic effort to war purposes prior to 1919, and since that time to the manufacture of consumable commodities. The peculiarity of the post-war situation was broadly summed up in the report of September 29, 1921, by the President's Conference on Unemployment:

"We are short more than a million homes; all kinds of building and construction are far behind national necessity. Considering all branches of the construction industries, more than two million people could be employed if construction were resumed. Undue cost and malignant combinations have made proper expansion impossible."

That part of private construction which is for residential purposes is financed mostly from savings of wage-earners and salaried classes. "Those capital accumulations which find their way into the savings banks and which pass through building and loan associations go largely into these building operations. Real estate is still the standard investment, too, of the lower middle classes." [2] Full information placed at the disposal of those interested in

[1] Carl Snyder, *American Economic Review,* March, 1921, p. 74; see also estimates of building volume by A. G. Wheeler in the "Bankers Economic Service," June 21 to July 12, 1921.

[2] David Friday, *New Republic,* December 14, 1921, p. 65.

building homes, showing the most favorable periods in the business cycle for such construction, should be of help in distributing a larger share of housing construction during periods of depression. The lowered building costs of depression insure more economical construction, and the demand for building materials and the direct labor employed in building insure relief from the unemployment characteristic of such periods. It is a common occurrence for building costs not to reach bottom until toward the end of a period of depression. This fact would discourage builders from activity during the forepart of depression, but there is every sound economic reason for adjusting a larger volume of housing construction to the low cost periods of the business cycle. Such a policy benefits the house owner through its greater economy, and benefits the laborer through the relief of unemployment at the period of widest suffering.

That part of private construction which is for industrial and business purposes derives its capital mainly from two sources—the sale of corporate securities and the reinvestment of corporate surplus. The corporate surplus is large in prosperous years and very small in years of depression:

Year	*Estimates of corporate surplus*[1]
1913	$1,000,000,000
1914	500,000,000

[1] National Bureau of Economic Research, Income in the United States, p. 35; see also David Friday, *New Republic*, December 14, 1921, p 65.

1915	1,600,000,000
1916	3,900,000,000
1917	3,400,000,000
1918	1,700,000,000
1919	1,300,000,000
1921	500,000,000

About nine tenths of corporate surplus as here estimated is retained by corporations and used for "the extension or safeguarding of business." [1] In the depression years of 1914 and 1921, only one half billion dollars of corporate surplus was available. In other words, the current income of corporations during hard times is insufficient to meet the expense of any considerable amount of current construction. If the huge corporate surplus of prosperous years is spent in immediate expansion of plant and equipment, all such building activity is carried on at the relatively high building costs characteristic of that stage of the cycle. The basic principle of stabilization would call for the setting aside of reserves during boom years to be used for new construction later on during depression, unemployment, and lowered costs. The long-range planning of capital expenditures in this manner would reduce the immediate and permanent costs of plant expansion, and would aid tremendously in the relief of unemployment at critical periods. Business thereby would benefit itself by economy, would benefit labor by providing employment during hard times, and would benefit

[1] Bureau of Economic Research, *ibid.*, pp. 32, 46.

the public by moderating the force of the cyclical changes.[1]

The other source of corporate expansion, namely, the sale of securities, lends itself to the long-range planning of construction only in so far as the investment market permits. There is not space here to analyze the movements of interest rates and of prices of stocks and bonds, but the generalization may be made on the basis of available studies that the tendency is for construction financed from this source to advance rapidly with prosperity and rising costs, to be checked but not decreased near the peak of prosperity and high costs, and to fall off heavily during depression.[2] The possibility of modifying these tendencies in conformity with the principle of stabilization of business meets with many difficulties. It is conceivable that the modification will take place as other phases of business policy are adapted to greater stability, but the main hope of stability through long-range planning of construction lies in the setting aside of ample reserves from corporate surplus in good years to be used for expansion of equipment in light years.

Business men find it difficult to plan their building programs far enough in advance to comply with this objective. It is easier to rush new building when

[1] See article by Arthur Woods, Chairman Committee on Civic and Emergency Measures, President's Conference on Unemployment, in *North American Review*, April, 1922, pp. 456-57.

[2] See W. C. Mitchell, "Business Cycles," Irving G. Fisher, "The Purchasing Power of Money," W. E. Lagerquist, "Investment Analysis."

demand is feverish in prosperous periods. But the unsystematic and hurried effort to provide productive equipment in that fashion leads to tremendous and often disastrous miscalculations. When the rush construction is completed, the productive capacity of the particular line of industry becomes so great that overproduction of that line of goods results. The maladjustment of productive capacity to actual demand brings about the unbalancing of production and marketing, with attendant crisis and depression. Then the companies which rushed their building programs have idle plants on their hands, built when costs were excessive, involving ruinous burdens of overhead expense which have to be met during the slump period. It is notorious that in the past the rate and volume and timing of industrial construction have been disastrously miscalculated. The long-range planning of production is practicable, with modern information for the forecasting of demand, of normal production, of prices and costs, and of the permanent and stable productive capacity which a given line of industry can maintain without destroying the balance between industries.

The problem of coördination of production and marketing must be considered from the standpoint, finally, of an industry which is basic in America—namely, agriculture. The attempts by W. S. Jevons and H. S. Jevons to prove that periods of business cycles correspond with periods of sun-spots were unconvincing. Subsequent studies of the same prob-

lem have been made by refined statistical methods, and have been more successful. H. L. Moore briefly states his conclusion from such studies as follows: "The weather conditions represented by the rainfall in the central part of the United States and probably in other continental areas, pass through cycles of approximately thirty-three years and eight years in duration, causing like cycles in the yield per acre of the crops: these cycles of crops constitute the natural, material current which drags on its surface the lagging, rhythmically changing values and prices with which the economist is more immediately concerned." [1] It is contended that the crop cycles generate cycles of food prices, of prices of organic raw materials, and of prices of manufactured commodities. The adjustments necessitated between prices and costs and demand and supply, it is argued, are basic causes of the broad business cycles. The statistical evidence behind the hypothesis is impressive, although not necessarily conclusive.[2] However, the practicability of control over cycles is not thereby impaired, since those phases of cycles which are subject to control are such as to offset the harmful tendencies of crop fluctuations.[3] All the policies

[1] "Economic Cycles: Their Law and Cause," p. 147, and articles in *Quarterly Journal of Economics*, February, August, and November, 1921.

[2] See Warren M. Persons, *American Economic Review*, Vol. V, pp. 646-8 and W. H. Beveridge, *Economic Journal*, Vol. 30, pp. 13, 209; Vol. 31, pp. 429-52.

[3] See W. C. Mitchell, "Business Cycles," pp. 239, 582, and in *American Economic Review*, March, 1922, Supplement, p. 21.

outlined in this volume are instrumental in that control. It will be advantageous, however, to deal specifically with certain policies which bear directly upon the agricultural aspects of cycles.

Some control over volume of agricultural production is not impossible. It is not, of course, proposed that the meteorological conditions can be regulated, but it is proposed by careful authorities to predict the time of their occurrence. For instance, H. L. Moore has made an elaborate analysis of the yield and price of cotton, the chief object of the analysis being as follows: "To make a contribution to economic science by showing that the changes in the great basic industry of the South which dominate the whole economic life of the Cotton Belt are so much a matter of routine that with a high degree of accuracy they admit of being predicted from natural causes." [1] From an analysis of Professor Moore's evidence, Professor Warren M. Persons asserts: "Without question he has succeeded. Professor Moore has demonstrated his thesis." [2] The wide application of such predictions would aid in regulating within limits the crop cycles. It is difficult to attempt to regulate agricultural production by limiting or expanding acreage, when weather and climate exercise determining influences over the year's production—unless there is some ground for

[1] "Forecasting the Yield and Price of Cotton," 1917.

[2] *American Economic Review*, Vol. VIII, p. 405; see also David F. Jordan, "Business Forecasting," pp. 10-11, 239-40.

prediction of this latter factor. Reasonably reliable prediction at this point would be of vital aid. It is necessary, also, to take cognizance of the left-over stock of farm products in giving thought to further production. Along this line, the words of President Harding's opening address to the National Agricultural Conference are suggestive: "With proper financial support for agriculture and with instrumentalities for the collection and dissemination of useful information, a group of coöperative marketing organizations would be able to advise their members as to the probable demand for staples and to propose measures for proper limitation of acreage in particular crops." Such a limitation of acreage in particular crops would necessitate a greater diversification of crops than now exists.

In the coördination of crop production with marketing, it is necessary to bear in mind that "foodstuffs are particularly subject to the vicissitudes of the market. A relatively slight surplus will result in a disproportionately sharp drop in prices. On the contrary, scarcity in relation to demand will bring about a sharp rise." [1] A deficiency of one tenth in the product of a particular staple results in an increase of three tenths in the price; a deficiency of two tenths in the product results in an increase of eight tenths in the price. American producers of cotton will receive more for a year's crop of 9,000,000 bales than for a crop of 13,000,000 bales. American

[1] Federal Reserve Board Bulletin, March, 1922.

producers of wheat will receive more for a year's crop of 700,000,000 bushels than for a crop of 1,000,000,000 bushels.[1] Efforts to control the prices of staple crops by a protective tariff are a delusion to the American farmer. The two policies which hold out the most hope for coördination of production and marketing are coöperative marketing organization and adequate long term credit for farmers.

The legality of farmers' coöperative marketing has been definitely established by the enactment of a federal law. The volume of agricultural coöperative marketing increased six hundred per cent in 1920, with a total turnover of nearly $1,000,000,000.[2] The main benefits from coöperative marketing, according to Bernard M. Baruch, will be a "fair and just stabilization of the markets" for the farmer's products, "an equitable and dependable compensation for his time and labor," and "the orderly marketing of farm products under intelligent direction." Consequently, "markets will be supplied according to their needs, and the salutary tendency will be to avoid both gluts and scarcities." [3]

Professor R. T. Ely, observing the President's Agricultural Conference, declared: "The best thought of the conference was that farmers' combinations are indispensable if the farmer is to be

[1] Opening address by President Harding before National Agricultural Conference, January 23, 1922, data based on findings of Congressional Joint Commission of Agricultural Inquiry, 1921.

[2] Bernard M. Baruch, *World's Work*, March, 1922, p. 476.

[3] *Ibid.*, pp. 474-80.

prosperous; and to have a prosperity in which all may participate." [1]

The orderly marketing of farm products, whether coöperatively or individually, requires appropriate credit facilities. The turnover of the farmers' product ordinarily continues throughout at least a twelve months' period, and in the case of livestock, the turnover continues for a period as high as three years. Commercial credit institutions have been developed mainly in response to manufacturing and distribution needs, where the period of turnover is a few weeks or a few months, and hence where the demand has been for short time commercial credit. The Federal Reserve Board recognizes that "there is a need for agricultural credits of an intermediate type running from six months to three years for production and marketing purposes." [2] The short term credits, when applied to farming, tend to force onto the markets an abnormally large amount of products in an unusually short period of time. The result is instability in the relations between supply and demand, and in the welfare of agricultural interests. The longer term credits, operating frequently through coöperative organizations, should make possible a smoother and more balanced marketing over the entire twelve months of the annual product. Progress in these directions does not imply the abandonment of the organized exchanges or the

[1] *Review of Reviews*, March, 1922, p. 274.
[2] Federal Reserve Board Bulletin, March, 1922.

elimination of middlemen. But it does imply an organization of the relationships between farm producers on the one hand, and exchanges and middlemen on the other, and a greater equality in the bargaining capacities of the producers and distributors of the agricultural product.[1] The unfolding of these policies is gradual and difficult, and the results promised will not meet the whole need and wish of farm producers. Nevertheless, in that direction lies the promise of the greater stability and coördination which the economic order requires, if it is to justify itself in the eyes of those who suffer and prosper within it.

The principles offered in this chapter make no pretense to include all the elements that enter into the coördination of production and marketing. Indeed, all the contributions to the volume are inseparable in their significance from the subject of treatment in this particular chapter. But the purpose here has been to correlate and explain those factors which bear with unusual directness on the problem of coordination. The technique of business control is in its initial stages of development, yet the broad outlines are already distinct enough to point with helpful clearness toward the requirements of a substantial degree of stability in business activity. The control of operating efficiency in both physical and human

[1] See American Economic Review, Volume XI, pp. 207-231; also T. Macklin, Efficient Marketing for Agriculture, especially chapters IX, XIII, XVI.

relations in industry, and the adaptation of the individual establishment to the outside economic forces, are primary tasks of modern business. With the good will and intelligence of modern business leadership, the evolution of events should move steadily toward the objective.

CHAPTER VI

INTERNATIONAL PROBLEMS IN BUSINESS STABILITY

Edwin R. A. Seligman

It is a platitude to state that nowadays no country can live to itself alone and be completely independent of its neighbors. But it is not always realized what changes have supervened in modern economic life to lend force to that statement. It may be profitable by way of introduction to consider the various causes that have contributed to bring about this result. For modern business life with its subtle and complex mechanism may be compared to a finely adjusted watch. When the watch is in order it runs with far more accuracy and precision than did the clumsy timepieces of former centuries. But just because of the delicacy of its mechanism it is far more liable to be thrown out of gear by a sudden shock. Modern economic life, just because it has become more international in character, functions normally with far greater stability and with immensely greater efficiency than in former times. But precisely because of this fact the instability caused by a sudden rupture of international relations may

become vastly more pronounced and immeasurably more injurious than before. What is true of international business is true, however, of every higher form of life. When Herbert Spencer defined progress as "an integration of matter from an indefinite, incoherent homogeneity to a definite, coherent heterogeneity" he expressed what is now an accepted truth.

Let us then proceed to consider in what respects modern economic development has contributed in its international aspects to normal stability and to potential instability.

I

MODERN BUSINESS AND INTERNATIONAL TRADE

The first consideration obviously is connected with the growth of trade and commerce. Originally trade was entirely local in character. The primitive communities produced all they consumed and consumed all they produced. When trade between communities began, it was restricted to a very few articles and limited within a narrow compass. For a long time, only the chance superfluities of one small group were traded for the similarly fortuitous surplus of another. When the early family group increased in size and its members differentiated in function, the village or town secured from its agricultural hinterland the raw materials which, after being worked up into finished products, were disposed of in turn to the farmers. The early fairs and marts dealt in barter only on a small scale. It was much

later that commerce with other countries developed; but even then for many centuries commerce took the form of retail transactions, maritime commerce being represented to an overwhelming extent by the individual trader in his own ship buying from, and selling to, an individual foreigner on a small scale. Even when the transactions grew in volume, the wholesale market was for a long time limited to a few articles. In England, for instance, all through the Middle Ages so-called staples were only five or six in number.

Entirely different is the situation of the modern world since the revolution in the means of transportation, both water and land. The whole world has now been unlocked, and the area from which raw materials are sought encompasses the globe: cotton and copper from the United States, silk and tea from China, tin from the Malay States, jute from India, coffee from Central America, rubber from Brazil, hides from the Argentine, copra from Africa, wool from Australia, sugar from Hawaii and Cuba—these and countless other raw materials of modern life come not only from every nook and corner of the world but are dealt with in wholesale. Moreover, with the increase in the area from which the raw materials are drawn, there has been a growth in competitive conditions. No one country, with insignificant exceptions, nowadays enjoys a monopoly of any particular product, and the price on the international market is continually being affected by

unpredictable changes in the output of each competing area.

The normal stability in the price of raw materials is, however, an expression of the equilibrium between supply and demand. The same forces which have so greatly increased the area of the supply have prodigiously augmented the amount of the demand. Here we have to consider not alone the increase in the number of countries brought within the range of consumption, but also the stupendous growth in the population of modern countries and, what is perhaps most important of all, the widening of the area of consumption through the increase of the standard of life, with the multiplication of wants. The inhabitant of every civilized country to-day not only consumes more than did his ancestor, but has a range of wants which can be satisfied only by products from every portion of the globe. Just as the supply is affected by the multifarious climatic and economic conditions of production, so the demand is affected by the continual changes in fashion, in the rate of wages and in business prosperity. The conditions affecting the wholesale market of every raw material have become infinitely more complex than of old.

In the second place, we have to deal with the finished products of modern industry, as the result of the industrial revolution. The capital which was laboriously accumulated during centuries of enterprise went into the extension of the agricultural area

and the development of maritime and overland commerce. The articles dealt in were to an overwhelming extent raw materials and food. Only gradually did a market develop for high-priced and luxurious finished goods. The great mass of industrial products were made to order and were sold at retail.

With the industrial revolution, however, and the advent of the factory system, all this has been changed. More and more is modern capital becoming industrial capital and utilized in working up the raw materials which science is extracting from nature. Not only articles of food, like canned goods and meat products, not only articles of clothing like shoes and dresses, but virtually everything that nowadays ministers to the primary wants of mankind is turned out wholesale by factory methods. The more developed the country, the greater will be the proportion of its finished industrial products as compared to the raw materials in its foreign trade. The movement of such commodities from country to country, following the changes in the wholesale market, constitutes a characteristic feature of modern business which is, therefore, becoming to an increasing extent international in character. As the facts of the domestic market are more and more affected by those of the foreign market, the conditions of a stable equilibrium naturally become more delicate.

In the third place, the financing of these large

operations involves an entirely new machinery. Whereas credit was formerly used chiefly to satisfy the needs of consumption, credit is to-day primarily production credit. The business man nowadays borrows not so much to meet sudden emergencies, as to expand his normal operations. While the needs of internal commerce are largely met by the banks, the machinery of international finance has become complex to the highest degree. If we take the situation in Europe as it existed shortly before the war, we find that large mercantile transactions between any two countries were generally financed through machinery which centered in one of the great world capitals, and to an overwhelming extent in London. For London, toward the end of the eighteenth and the beginning of the nineteenth century had supplanted Amsterdam as the world's financial center.

The machinery of financing foreign trade may be succinctly described as follows: Merchant A in France, let us say, has imported coffee from M in Brazil, while B, in France, has exported the same value of silks to N in Brazil. Instead of A sending money to M and N sending it back to B, it is evidently simpler for A and B to settle with each other in Paris and M and N in Rio de Janeiro. B accordingly writes an order known as a bill of exchange to N, directing him to pay M in Rio; or, in other words, B draws on N. A buys this bill from B and sends it to M, who presents it to N and gets

it cashed. Thus no money is exported and only one bill is drawn.

Inasmuch as it is not always easy for the M's and N's to find each other in Rio and the A's and B's in Paris, the business of issuing and purchasing such bills has become the function of the banker and the bill broker. Moreover, since these bills can be transferred by endorsement, they are available for payment not only between France and Brazil, but between any other countries that have dealings with either. This explains the so-called three-cornered exchange, where one country imports from a second and pays by drafts on a third, which has imported from the first. Finally, since it is necessary to make only one transfer order, bills are generally drawn on that country which possesses the larger financial center. In fact, the great mass of bills, especially in the case of exchanges between less important countries, were, previous to the war, drawn on London in pounds sterling. This was due to the immense volume of British trade, to the stability of the British currency, and to the fact that the seller of a bill in London could almost invariably count upon finding a buyer on advantageous terms.

The usual machinery is for the bill to be drawn payable from two to six months after sight—"sight" meaning the date on which the bill, when once in London, is presented to the acceptor for acceptance. In the case mentioned above, the Brazilian importer of silks may initiate the transactions

by buying a bill of exchange on London from a Brazilian banker or exchange dealer. This bill is then forwarded by the foreign banker to his London agent and, after it has been accepted by some bank or accepting house which is willing to perform this transaction for a commission, the agent of the foreign banker can sell it in the London market on behalf of the foreign banker at the current rate of discount. After several months, this discounted bill falls due and must be paid by the acceptor or by the individual or the institution to whom the bill has in the meantime been sold. During the interval between the making out of the original bill and its final payment, the bill has not only provided credit to the original parties to the transaction, with an opportunity to use the funds in the meantime, but has also afforded a safe and liquid investment to the various banks or acceptance houses which have kept the bills in their portfolios or, in case of need, borrowed funds on the security of the bills. While in normal times the equilibrium between exports and imports in any country is maintained in last instance through this machinery of the rate of exchange, which registers the price at which these bills of exchange are bought and sold, it is quite apparent that in times of stress or emergency the slightest shock to the confidence on which this whole machinery of credit is built up will seriously impair the stability of the system.

In modern times, however, there is an additional

complicating factor. Whereas formerly international commerce was composed exclusively of transactions in commodities—first in raw materials and later in finished products—modern internationalism has supplemented trade in commodities with trade in investments. With the progress of wealth and the accumulation of capital, there comes a time in every country when there is a relative satiety of capital at home and when it becomes more profitable to make investments in foreign countries, where capital is still scarce and where profits are correspondingly high. This tendency has been considerably accentuated by the opening up of new territories, where the chances of exploiting natural resources are considerable, and where the temptations to invest are proportionately great.

A country with relatively undeveloped resources finds in modern times two ways in which to attract capital. The one is through the machinery of public credit. The South American nations or China, for instance, issue public loans for the construction of railways or the completion of other public improvements, and these loans are sold abroad to the investor who is attracted by the discrepancy in the rate of interest between the foreign and the domestic bonds. More common in other countries, as in the United States during the nineteenth century, is the practice of foreign investment in domestic securities which promise advantageous returns. Not an inconsiderable part of the American railway system

has been constructed with the aid of foreign investors; and not an insignificant fraction of American real estate holdings is represented by foreign investment. In the eighteenth century Holland was the chief creditor nation of the world. In the nineteenth century it was primarily England, with France a close second, and toward the end of the century with Germany looming up as a formidable competitor. As a result of the Great War, through which all the European nations became debtor countries, the United States is for the time being the great creditor nation. This flux and reflux of investments on a gigantic scale has become, as we shall see, an important factor in international economic stability.

Finally, attention must be directed to the so-called invisible items in the foreign trade of every foreign country. As Cairnes pointed out long ago, the real balance in any country's relations with its neighbors is to be found not in the obvious relation between visible exports and visible imports of commodities, but rather in the equilibrium between debits and credits. In this equilibrium the so-called invisible items play in modern times an increasingly significant rôle. It is elementary, indeed, to point out that if all international economic relations consisted only in the exchange of commodities, the money value of imports and exports would have to be equal. If country A exported more to country B than it imported from country B, and if these were the only

parties to the exchange, B would incur a debt to A which would have to be met ultimately by sending commodities in payment; in which case A would be importing more than it exported, thus reëstablishing the balance. If the transactions consisted not only of commodities, but also of money, it is true that B could pay its debt to A by sending gold; but the continuance of this practice would soon result in such a transfer of gold from B to A that the general level of prices in A would rise and it would become increasingly disadvantageous for B to purchase commodities in A; so that in the long run the equilibrium would be reëstablished.

As a matter of fact, however, modern trade involves a continually larger proportion of the so-called invisible items. Prominent among these invisible items is the export or import of securities referred to in the preceding section. While the transfer of the securities involves only a single operation, the payment of interest or dividends on the securities involves a repeated and continuous operation. When the foreign investment is made, the export of the domestic securities to the foreign investor acts precisely, so far as the rate of exchange is concerned, like the export of commodities. But when it comes to sending abroad the interest or dividends on these securities, the result is just the opposite. The interest and dividends are sent usually in the shape of commodities, so that a part of what seems to be a so-called favorable balance of

trade or an excess of exports over imports is simply evidence of the ability of a country to pay interest on its debts.

This international flow of investments represents, however, only one form of the so-called invisible items. The profits made on international transactions are another element. If an American merchant A sends a cargo of ten thousand dollars' worth of knives to China, which may there sell for twelve thousand dollars, and if, with the proceeds, he buys tea in China which is worth fifteen thousand dollars at home, the five thousand dollars excess of imports over exports will represent his profits. So that it might seem that a so-called unfavorable balance of trade or an excess of imports over exports is really a favorable balance in so far as it represents profits. The importance of this consideration, however, is largely attenuated by the fact that the transactions will be neutralized by similar transactions originating in China, where the Chinese exporter of ten thousand dollars' worth of silks finds that they are worth twelve thousand dollars in America, and with the proceeds buys machinery which turns out to be worth fifteen thousand dollars in China. In the long run, on the assumption that trade is mutually, and under normal circumstances equally, profitable, there will accordingly be no balance on either side. It not infrequently happens, however, that for a time at least trade between any two countries, while mutually profitable,

may not be equally profitable; and to this extent, and for the time being, a surplus of imports may represent an excess of profits or the reverse.

More important as a permanent factor are those gains or profits which accrue to any one country from control of particular branches of enterprise. During the latter part of the nineteenth century the overwhelming mass of Anglo-American commerce was carried in English bottoms, just as at the beginning of the century it was carried in American bottoms. The resulting charges for freight are again ordinarily paid in the shape of commodities. Not a small part of the normal excess of imports over exports in Great Britain before the war was due to this cause.

Of much the same character are the premiums for the insurance of the vessels which carry the freight, as well as the commissions of the bankers and acceptance houses which, as we have just seen, were largely responsible for financing international trade before the war. The freights, insurance premiums, and bankers' commissions amounted to hundreds of millions of dollars; so that to this extent the British excess of imports and the American excess of exports of commodities simply registered the one-sided profits of Great Britain. Other invisible items which work now one way and now another, are the sums brought in, or, on the contrary, remitted by immigrants to their relatives abroad. Finally, in these days of international

travel we must not overlook the sums spent by foreigners in sojourning in any particular country.

All these invisible items rob of much of their value the inferences from the published figures of exports and imports. A country with a seemingly large favorable balance may in reality be becoming more and more unprosperous, while a country with a seemingly unfavorable balance may in reality thereby register its prosperity.

Entirely apart from this consideration, however, it is evident that the number of factors affecting international stability of economic life is prodigiously greater than in former times. However desirous a country may be to declare itself politically independent of its neighbors and of the rest of the world, the aim is nowadays impossible of achievement. The very constitution of modern society, with its numberless interrelations, precludes the possibility of such economic aloofness. Every country is more or less inextricably intertwined with the fortunes of its neighbors; and the adversity of one necessarily reacts on the prosperity of the other. Economic stability in modern times has become a world stability. Because of this fact, it is exposed to winds and currents which have multiplied in number and intensity. While the structure has become finer and loftier, it has at the same time become more delicate and more exposed to the play of sudden and unlooked-for forces.

II

ECONOMIC EQUILIBRIUM AND THE WAR

We have to consider in this section not so much the ravages of the Great War within each of the belligerent countries—for these facts are fairly well understood—as the facts of the war in upsetting the international economic equilibrium. We have to ask, in other words, not so much what losses and burdens each of the warring countries suffered at home through the direct impact of the war, as what were the losses due to the change in its economic relations to other countries. It is a story, in other words, of the overturn in the economic equilibrium and of the resulting international instability.

The history of each country can best be told in the record of the rate of the foreign exchanges. The problem is thus in reality the problem of the instability of the foreign exchanges.

The outstanding episodes in the history of the war are comparatively simple. When the war descended on the unsuspecting world in August, 1914, like a thunderclap out of a clear sky, the first effect was to demolish with a crashing blow the entire mechanism of the foreign exchanges. The first result was to force a crisis in the bill market. Under ordinary circumstances, as we have seen, international trade was carried on largely through the medium of bills of exchange drawn in pounds sterling on London. These bills of exchange were

normally met, and ultimately paid for, by the shipment of commodities or of gold or securities to England. With the outbreak of the war, the international security market collapsed, and there was no chance of the foreign makers of bills of exchange resorting to the last expedient. Moreover, the immense rise in shipping rates, due to the insurance against war risks, was such as virtually also to preclude the shipment of goods as well as of gold. Inasmuch as few people, therefore, ventured to inaugurate such risky transactions, there was almost everywhere a rapid fall in the supply of bills in the various capitals of the world. Moreover, this coincided with a rapid increase in the demand on the part of those who were obliged to meet the bills drawn some months before on their account.

We must also not forget that in addition to these so-called documentary bills there are always outstanding large quantities of so-called finance bills, that is, bills that are not drawn against any shipments of goods at all. Finance bills are, as is well known, a kind of accommodation paper. A bank in any one country, for instance, may arrange to open a credit on a London accepting house, often covering the credit by collateral security in the shape of stocks and bonds. The bank will then draw on the London accepting house and after selling the bill, employ the funds at home in the shape of loans to would-be customers. These credits opened by the London banks or accepting houses might, of course,

be continued indefinitely. It so happened that the issue of these finance bills had been somewhat overdone, and that in the few weeks before the war there had already begun a process of reduction.

The falling off in the supply of both commercial and finance bills, combined with this increase in demand, could have only one effect. Foreigners who had remittances to make bid clamorously against each other, so that the rate of exchange rose suddenly and dramatically. Within a few days the rate of exchange in New York rose from the normal figure of about $4.865 to almost $7.00. In other words, the American dollar for the time being suffered a depreciation of almost fifty per cent. The same was more or less true in every other country. But the situation in London was especially serious. Since the foreign debtors could not send the funds to meet the bills that had been drawn on London, the London banks, bill-brokers, and accepting houses were in a very embarrassed situation. Up to that time bills of exchange had been considered the most liquid form of investment; but now the institutions were all threatened with failure through inability to collect on these bills. The Government, therefore, issued several proclamations, first postponing for a month the liability on acceptances, and finally providing that the Bank of England should discount all approved bills accepted before August 4, without recourse against the holders, and agreeing to guarantee the Bank of England from any losses that

might ensue. In the meantime, a moratorium had been declared, and a little later, namely on September 5, it was provided that the Bank of England, in lieu of merely buying the bills accepted before the moratorium, would lend money to the acceptors to meet them. In this way not only the holders of the bills, but also all previous endorsers, were relieved from further responsibility.

In its effort to save its own banks by calling in all credits from abroad and as a result of the dramatic rise in the foreign exchanges, every other country declared a moratorium either in law or, as in the United States where the Stock Exchange was closed, in fact. The whole edifice of international trade fell with a crash, and the rate of international exchange was dislocated, in keeping with the fears engendered by the outbreak of the war.

The more recent history of the exchanges may be divided into three periods: first, the gradual changes that supervened until the entrance of the United States into the war; second, the period of American participation in the war; and third, the situation after the war.

In the beginning of the first period, shortly after the outbreak of the war, the demand for bills on Paris and Milan as well as on London continued. so that the rates on the New York market were still at a considerable premium. With the autumnal increase, however, of exports from the United States, which was now accentuated by the growing war de-

mand from the European belligerents, the rates of foreign exchange began to decline. The New York rate before very long again touched par. In fact, as the war continued, the situation now tended to reverse itself. The belligerents vied with each other in their efforts to secure food, raw materials and the munitions of war in the United States, and a period of enormous prosperity and prodigious profits set in on this side of the water. Our exports increased by leaps and bounds and the question now arose as to how the foreign countries were to pay for their enormous imports without suffering an inordinate loss in the rate of exchange. Great Britain, indeed, was able for a time to prevent any great losses and succeeded in stabilizing her rate of exchange in the United States, partly by sending over great quantities of gold, partly by contracting large loans in this country, and partly by mobilizing the securities of both North and South America held in England, in order to resell them in this country. France did not fare quite so well as Great Britain; for while she participated with Great Britain in one of the large loans contracted in the United States, she had relatively few American securities to dispose of. Italy, after her entrance into the war, fared still worse than either France or England; for neither of the expedients referred to above was possible in her case. By the early spring of 1917, the rates of exchange on the United States were such that the pound stood at about 97.9 per cent of par, while

the franc had fallen to 88.7 per cent, and the lira to 67.9 per cent of its par value.

During this period some of the other neutral countries fared almost as well as the United States, in that they were making immense profits and were being paid to a large extent in gold. In fact, this situation even created some embarrassment. For just as the enormous imports of gold into the United States led in 1916-17 to a violent rise of prices in this country, even before we entered the war, so the same fall in the value of gold led in Sweden to an anomalous situation in which paper currency was worth more than gold—a remarkable conjuncture which the Government attempted to meet by prohibiting the further importation of gold. The consequence of the general situation was that while American exchange on the belligerent countries stood, as we have just pointed out, at a premium, the reverse was the case with some of the neutral countries like Spain and Switzerland.

The second period in the history of international exchange begins with our entrance into the war early in 1917. It now became of the utmost consequence to the Allies to stabilize the exchanges, even through artificial means, in order to prevent the continued fall in the purchasing power of the pound, franc, and lira, with the inevitable increase in the cost of the goods, necessary for the continuance of the war, purchased in the United States. In fact, as we now know, the United States entered the con-

test in the very nick of time. For Great Britain, not to speak of the other countries, had come well nigh to the end of her tether. She had sold in the United States all of the available securities hitherto held at home; she could not contract any more large loans in the United States except at ruinous rates; and the small quantity of gold which she still held in her reserve was entirely inadequate for meeting the prodigious claims on this side.

No sooner had the United States entered the contest, however, than the American Government itself began to make gigantic advances to all of its allies, and it became possible to stabilize the British exchanges by the process of what became known as pegging. Under the law, all dealers in foreign exchange in the United States now had to be licensed, and this made it far easier to centralize all foreign exchange operations. Messrs. J. P. Morgan and Company, as the fiscal agents of Great Britain, now undertook to buy and sell British Treasury bills in the open market in New York and, by utilizing the credits advanced by the United States, offered to supply, and were able to supply, at the stated price of $4.76 (instead of the par $4.86) any sterling exchange that might be demanded in New York. Inasmuch as all transactions in exchange were under the control of the Division of Foreign Exchange of the Federal Reserve Board, and inasmuch as the War Trade Board exercised a rigid control over exports and imports, these facts, coupled

with the embargo on the export of gold, rendered the "pegging" of exchange a comparatively simple, although an undeniably expensive, matter. Through the close relation between Great Britain, France and Italy, the franc and the lira, as well as the pound, were now also stabilized. But, as a natural consequence, the stabilization of sterling in New York produced an opposite effect on the currencies of the neutral governments. In proportion as the depreciation of the allied currencies in the New York market was prevented, their fall in the neutral countries was accelerated; and as Great Britain and the United States were now tied together by means of the peg, not only the British pound but the American dollar was gradually depreciated in the neutral countries. In November, 1917, Swedish kronen were at a premium of about 70 per cent in New York, and in April, 1918, Spanish pesetas were at a premium of about 54 per cent. Thus the stability which was maintained at one end of the international transactions was offset by the instability at the other end; and great complaints arose on the part of Americans having commercial transactions with the neutral countries. The chief object, however—that of mobilizing all the financial resources of the Allies for the successful prosecution of the war and the purchase of supplies at the least sacrifice—was attained.

With the end of the war, however, there was no longer any inducement for the Allies to continue the

expensive operations of pegging, and as a result in March, 1919, the British exchanges were unpegged. This led, of course, to an abrupt fall which now reflected the natural economic conditions. Not only was the decline precipitous, but it was continuous. By 1920 pounds had touched the low water mark of $3.19, francs had fallen from the par of 19.2 cents to as low as 5.70 cents, and lire had touched 3.34 cents. By the end of 1920 British exchange stood at 72 per cent of par, French exchange at about 30 per cent and Italian exchange at about 17 per cent. After that date, there was a gradual improvement, although with great and sudden fluctuations. In July, 1922, the figures were respectively: pounds $4.40; francs 8.40 cents; lire, 4.72 cents.

With the close of the war, the exchange rates on the Central Powers came also to be a matter of interest. While the position of the former Allies gradually improved, the reverse was naturally the case in the defeated countries. With the progressive intensification of the unsatisfactory situation after the peace, the perilous economic conditions at home in the Central Powers were reflected in such a dramatic fall of the exchanges that by July, 1922, the value of the German mark in New York had fallen from 23.8 cents to 0.29 cents, and the value of the Austrian krone from 20.3 cents to 0.005 cents.

So much for the bare facts of the oscillation in the exchanges. What now are the fundamental evils that we may ascribe to this instability? In

so far as the depreciation of the foreign exchanges in any particular country is the result of the internal economic situation, and in so far as this internal economic situation has been caused by the excessive issue of paper money, or of other factors superinducing a sudden rise of prices, the unfortunate results are well known and have been explained in one of the preceding chapters of this book. The general conclusions of such a state of affairs have been summed up elsewhere by the present writer [1] as follows:

"During the period of rapidly rising prices we have all the appearances of a phenomenal prosperity. Not only, however, is this prosperity illusory, but it creates its own nemesis in the inevitable reaction that is sure to ensue.

"The prosperity, we have said, is illusory. With the rapid rise of prices, those who have no commodities to dispose of suffer severely. The creditor is in an unhappy position and the recipients of fixed incomes are compelled to resort to all manner of unworthy expedients in order to make both ends meet. The continual fluctuations of price introduce an uncertainty in business which is only temporarily masked by the advance. The opportunities of a sellers' market irresistibly lead to profiteering and its attendant evils. The sudden increase of the paper income produces private extravagance and

[1] "Currency Inflation and Public Debts. An Historical Sketch." New York, 1921, pp. 59-60.

public prodigality. The extravagant rise of wages, even though it lags behind the general rise of prices, coupled with the unceasing demand for labor, engenders a demoralization, which soon returns to plague the industry. The habits of thrift, painfully built up during a lifetime, are abruptly discarded. The kaleidoscopic mutations of paper fortunes, amassed almost over night, beget a spirit of speculation and of peculation. The feverish activity of the market destroys the habits of orderliness and sobriety, and the brilliant prospects of suddenly acquired wealth create in the public a delirium of improvidence and the sense of living in a veritable golden age.

"The day of reckoning, however, soon follows. When the wave rises to a crest, it breaks with an overwhelming force; when the fever subsides, the resulting weakness is intense. As the paper finally loses its value, fortunes are now suddenly wiped out, and many of the supposedly wealthy find themselves beggared. With the collapse of demand, unsalable stocks deplete the business inventory and failures are the order of the day. Those who have habituated themselves to an extravagant mode of life are faced with the grim necessity of immediate retrenchment. The laborer resists to the uttermost any lowering of his wages, however necessary it may be to the re-establishment of the new equilibrium. The Government finds itself embarrassed by the drying up of the sources of its revenue. The prudent and the

patriotic, who have undergone sacrifices in order to invest in government paper, suffer for their patriotism. The splendors of the former prospects are now seen to have been only a mirage. The golden age of inflation turns out to have been after all nothing but a gilt-paper age."

While the instability of the exchanges, however, in any one country is primarily due to the internal conditions in that country, the very fact that we are discussing international relations shows that it may also be affected by conditions abroad. Whether we are dealing with the one set of causes or with the other, the result of instability is naturally to engender a great uncertainty in foreign trade and thus to hamper the free interchange of commodities. A sudden alteration in the rate of foreign exchanges will tend to lessen either exports or imports, as the case may be, by making the foreign country a less favorable market in which either to buy or to sell. But the unpredictable character of the fluctuations of exchange will tend to enhance the speculative character of all commercial transactions, and thus to lessen the volume of normal conservative transactions.

III

THE INSTABILITY OF INTERNATIONAL EXCHANGE IN THE ABSENCE OF A GOLD STANDARD

In order to comprehend the present chaotic condition of the world's exchanges, it is necessary to distinguish between exchanges that are adjusted to

the presence of some metallic standard and transactions that are divorced from the existence of such a standard. International exchanges have for centuries been based upon the existence of either gold or silver as the final medium of payment. During the Middle Ages both metals were used, with a resultant embarrassment due to the oscillations in their respective values toward each other, and with the alternative use in actual practice of the one or the other metal. With the advent of the nineteenth century the gold standard had spread to most of the countries of the world except China and some of the South American nations, and by the beginning of the twentieth century most of these, with the exception of China, had gone over to what is known as the gold exchange standard.

Where the currency of a country rests on the gold standard the theory of international exchange is simple. When the equilibrium between the debits and the credits of a country is altered, through a change in the imports and exports of commodities or through a change in some of the invisible items mentioned above, the demand for, or the supply of, bills will suffer such a change that the rate of foreign exchange will fall below, or rest above, the so-called gold points—that is, the figure at which it will become profitable to send gold bullion in payment of the account. The gold points will vary from the normal rate of exchange only by the actual cost of transshipment, including freight charges, insur-

ance, commissions, etc. The gold points are rarely exceeded, because any change in the rate of exchange will alter the tendency to increase exports or imports, as the case may be, and thus to reëstablish the equilibrium. Any continuous export or import of gold in settlement of a foreign balance is also unlikely. For in proportion as the gold flows into any one country prices in that country, measured in gold, will tend to rise; and with the rise of prices, that country will become a more favorable market in which to sell goods. The increase of imports into the country in question will automatically alter the rate of exchange and to that extent diminish the inflow of gold. Commodities rather than gold will be imported; and if the process is carried to the other extreme, gold will have to be exported in order to pay for the commodities. Under the gold standard, therefore, there is always an automatic self-regulation in international exchange.

This does not, of course, mean that the level of prices must be the same in every country. It means only that the equilibrium of international exchange has adjusted itself to the existing level of prices in each country, and that any departure from this equilibrium will readjust itself. This is perfectly compatible with a price level which differs from country to country. The price level in any country is dependent upon certain fundamental economic considerations, such as the relation between production and consumption, the cost of labor, the rate

of wages, the standard of life, the opportunities for capital, the rate of interest, the quantity of free land, and all the natural and technical conditions of production.

In the nineteenth century, for instance, the level of prices was higher in the United States than in Great Britain. A dollar in the United States would buy far less of the comforts and conveniences of life than in England. The price level, again, in Great Britain was higher than in Italy; the price level in Italy was higher than that in China. Any change in fundamental economic relations will bring about a change in the price level in that country. In Germany, for instance, the advent of the industrial revolution and the introduction of the factory system about two generations ago greatly increased wages and prices. In Japan the revolution in the credit system and in the whole machinery of trade and commerce which took place a single generation ago produced a similar effect.

As long, however, as each country is on the gold basis, any change in its own level of prices will have but slight effect on international trade. A country which has witnessed an increase in its own general price level may indeed from one point of view become a less favorable country in which to buy; but the very increase of productivity which is reflected in this rise of the price level may enable it to meet the foreign prices in its goods for export. As Ricardo pointed out a century ago, foreign trade

depends not upon actual, but upon comparative, differences in cost. It may be advantageous for a country to import from abroad articles which it could produce more cheaply at home, provided that it can pay for these articles by sending in return commodities where the differential in its favor is still greater. Foreign trade between countries on a gold basis is, therefore, continually being affected, not so much by any change in the general level of prices, as by a change in the comparative cost of production of the particular commodities whose prices go to form, in their totality, the basis of the general level of prices. Under normal conditions there is in international transactions always an equilibrium, any departure from which tends at once to establish a new equilibrium.

The situation becomes very different, however, when countries are no longer on a gold basis—that is, when the currency of a country has been divorced from the gold standard, when there is no longer a free inflow and outflow of gold, and when the various forms of the paper currency are no longer redeemable in gold. This is the situation all over Europe at present. In fact, it is virtually the situation in every country of the world except the United States. It is the result not of any wisdom on our part, but of sheer good fortune. Had we been participants in the war from the outset, instead of being for three years the chief beneficiary of the war, we should also by this time have been in the same predicament as the

other belligerents. The prodigious profits that were made from 1914 to 1917 enabled us, notwithstanding our generous and occasionally extravagant outlay during the war, to attain and to retain our position as the creditor country of the world.

What interests us here is an explanation of the theory of international exchange when no longer based on the gold standard, for this explanation alone will render possible a comprehension of the existing instability in foreign trade.

The modern theory of international trade under such conditions has become known as the theory of the purchasing power parity. Under the former system, the rate of exchange always oscillated about the gold par; under the existing system, the rate of exchange always oscillates about the purchasing power par.

In order to make this clear, we must distinguish between the internal purchasing power and the external purchasing power in any country. The internal purchasing power of a unit of value like a franc or a mark is measured by the price in francs or marks of a group of staple commodities. If the price of such a group of commodities rises, then we say that the internal purchasing power of the franc or the mark falls. Now suppose that instead of buying this group of staple commodities at home, the money is spent in buying a similar group of goods abroad. Let us suppose further that this group of foreign goods will be paid for in the foreign currency

—for instance, the dollar, and that the dollars are secured by selling francs or marks, as the case may be. The price of these foreign goods in francs or marks will then represent the external purchasing power of the franc or mark.

Under these conditions the doctrine of purchasing power parity can be explained very simply. When a given sum of francs or marks will buy abroad the same quantity and kind of commodities as could be bought at home, after allowance has been made for the cost of transportation and for any import and export taxes that may be levied, then conditions may be said to be in equilibrium. Under normal conditions of equilibrium in international trade, in other words, the internal purchasing power and the external purchasing power (after making allowance for costs and taxes) must be the same. If now we divide the price in francs or marks of a given group of commodities in France or Germany, by the price in dollars of the same group of commodities in the United States, the ratio is an exchange value of francs or marks in terms of dollars and this ratio is called the purchasing power parity.

When there is any divergence from this purchasing power parity, when, in other words, after making allowances for taxes and freight, the external purchasing power of a franc or mark differs from the internal purchasing power, the equilibrium no longer exists. Just as under the old system a departure from the gold par brings into operation forces which tend

to reëstablish the equilibrium of foreign trade, so under the new system a departure from the equilibrium of the purchasing power parity will similarly bring into operation economic forces to reëstablish the equilibrium. But whereas formerly in time of need the export and import of gold played a considerable rôle in this reëstablishment, under the new system it is upon the other factors in the reëstablishment of the equilibrium that we have chiefly to depend. There are no longer any gold points.

It must be pointed out, moreover, that the actual divergencies from parity are much greater under the purchasing power parity than was formerly the case under the gold parity. For the instability of European economic conditions is such that not only is there now much more speculation than formerly, but the sudden changes in the internal purchasing parity due to fluctuations in the amount of paper currency, and the consequent unpredictable demands for foreign payments of all kinds, lead to an uncertainty which is registered in an almost continuous discrepancy between the actual rate of the exchanges and the purchasing power parity. The forces which work for a reëstablishment of the equilibrium are, however, none the less strong.

There are further reasons which explain the difference between the old gold par and the new purchasing power par. The equilibration between the internal and the external purchasing power rests on the assumption that we are dealing in each case

with the same group of commodities. As a matter of fact, however, the internal purchasing power of the franc or mark is generally obtained from an index number of commodities which, although consumed at home, do not always serve the same purpose as commodities for export. Moreover, it must not be forgotten that it not only costs something to bring commodities from one country to another (allowance for which has been made in the explanation above) but that it also takes time, sometimes in fact many months, to complete the transaction. Thus we must also make allowance for a discrepancy which may be called the lag between the internal and the external purchasing power. Finally, even if we think of the internal purchasing power in terms of export goods and allow for the lag, there may be such exceptional, but nevertheless long-continued, forces at work in altering general conditions of cost of production and consequently the prices of the great mass of internal commodities, as to involve the necessity of establishing a new equilibrium. The whole question of reparations in Germany, for instance, with the torrential issue of paper money, has caused such a continuous and violent rise of prices at home and such a disarrangement in foreign trade, with so-called calamity booms and prosperity failures, that there has been the need for an almost perpetually new equilibrium in foreign transactions, accompanied by a corresponding continual discrepancy between the actual rate of exchange and the purchas-

ing power parity. What was in former times under the gold par the reëstablishment of an equilibrium made once and for all, or at least for a considerable period, is now subject to fundamental changes almost from day to day.

IV

THE RESTORATION OF STABILITY IN INTERNATIONAL TRADE

How can the stability of international economic relations be restored? The instability of international trade relations, while importantly affected by the situation in the foreign country, is, of course, primarily the result of conditions at home. The history of each one of the belligerent countries has been in its main outlines the same. The prodigious cost of the war, with virtually the whole nation in arms or at work in order to maintain the armed force, must be measured not only by the actual sums needed for the gigantic expenditure but also by the sacrifice involved in the complete dislocation of conditions of production and consumption. With the failure of the ordinary revenue, or even of the extraordinary revenues from taxation, to fill the gap caused by the needs of the war, it became necessary to resort in increasing measure to public credit. This took the form not only of voluntary domestic and foreign loans, but also of the compulsory borrowing, involved in the issue of irredeemable government notes or inconvertible bank money. The rise of prices which

took place in every country in turn was due primarily to the decreasing production caused by the withdrawal of the workers, to the increasing demand of the community for war expenditures, and to the resort in continually growing measure to the use of government credit to take the place of the disappearing private credit. It is only in the United States, which entered the contest so late, that the resort to paper money became unnecessary, largely because of the immense possibilities of credit expansion afforded by the new Federal Reserve Bank system.

Fundamentally, therefore, the dislocation of production and consumption registered itself in the impossibility on the part of any country to preserve its budgetary equilibrium and in the necessity of bridging the gap between revenues and expenses, by the resort to credit in the shape of either voluntary or compulsory loans. With the conclusion of the war, the situation in all of the continental countries became worse rather than better. In France, the immense sums needed for the reconstruction of the devastated districts had, in default of the receipt of reparations from Germany, to be borrowed. In Italy, the cost of demobilization and of pensions required unusual sacrifices. In Germany the necessity of raising the gigantic indemnity, coupled with the effort required to restore normal life at home, engendered a continual resort to the printing press. Everywhere, with the exception of Great Britain and

the United States, the situation went from bad to worse; and even in Great Britain and the United States the cessation of the purchasing power on the part of their best customers on the European continent contributed in no small measure to the business depression and the wave of unemployment which spread over both countries shortly after the conclusion of peace. The situation as it now developed throughout the world may be concisely described:

In Russia, the former granary of Europe, and an important market for the manufactured products of the other states, production was so fantastically reduced by the combined operation of the war, the blockade, and the wild economic program of the Soviet government that Russia was virtually no longer a figure in international trade. In France and Belgium, the ravages of the war had been so great that it was only with extreme slowness that industry began to reassert its sway. In the newly created states of Central and Eastern Europe, the exacerbation of the national spirit in the construction of boundary lines with reference to political rather than economic considerations developed such barriers to trade and intercourse as to minimize the beneficial influence of international commerce. In Germany, the catastrophic fall in the value of the mark destroyed the possibilities of what had been the best continental customer of Great Britain and the United States. In every one of the European

countries in turn, save Great Britain, expenditures leaped madly along in advance of revenues and the flood of paper money became ever more menacing.

Under such conditions, not only did the internal situation in each country become progressively worse, but the international trade relations with its neighbors were attended with constantly greater difficulties. The stability of international commerce disappeared and with the depreciation, in various degrees, of the different currencies a feverish speculative activity took the place of old-time normal conditions. In only one country of the world, the United States, was the gold standard maintained; but even in the United States the repercussion of the unfortunate conditions abroad became increasingly manifest.

The stability of international economic relations is equivalent to the stability of the foreign exchanges. The stabilization of the foreign exchanges can, however, not be brought about until each one of the causes which have made for instability is removed. The stabilization of the exchanges depends fundamentally upon such a relocation of the forces of production and consumption in each country as to render possible the disappearance of each of the phenomena adverted to above.

It is often said that what is needed is a return to the gold standard, to be accomplished by a deflation of the currency comparable to the inflation that has been caused during the past few years. It

is indeed true that final stability cannot be secured without a return to the gold standard. But in the first place this does not necessarily mean deflation, and in the second place it depends for its accomplishment upon many preliminary steps.

In the first place, the inflation and resultant depreciation of the currency, which registers itself in the rate of foreign exchange, have been so enormous as to cause incalculable suffering to all the creditor classes of the community. A temporary, although continually disturbed, equilibrium has been brought about as a result of these painful experiences. The endeavor to produce a deflation corresponding to this extreme inflation would cause still further distress, this time to the debtor classes, i. e., the business and producing interests of the community, with the probable result of a complete breakdown of the machinery of production. The most that can be hoped for in the countries of continental Europe is to arrest the progress of further inflation, with the hope of stabilizing the currency at something nearly like the present level. A return to the gold standard might then become possible after a relocation among the different countries of the immense stock of gold now held by the United States. It is not so much deflation as stabilization that is needed.

It is hopeless, however, to expect any arrest in the impetuous torrent of new emissions of paper money without preliminary steps. First and foremost, the budgetary balance must be reëstablished in each of

the European countries and the revenues must be made to square with the expenditures. This presupposes a resumption of the former conditions of production; for without production and profits, that is, without the necessary social income, there can be no adequate government income. The reconstitution of both agricultural and industrial production, however, will be facilitated by a much greater approach to free and untrammeled trade among the various countries than now exists. Production depends upon consumption; industry and agriculture depend upon markets; and the markets depend upon the standard of life of the consuming population.

In the long run. therefore, no resumption of stability in international economic conditions can be expected without laying the foundations for prosperity in each one of the states affected. It goes without saying, however, that in this complicated network of conditions, the two primary facts are the reparations in Germany and the inter-Allied indebtedness. The reduction of the reparations due from Germany to manageable figures and the postponement or the mutual cancellation of the several tens of billions of Allied debts constitute factors of the greatest significance in the solution of the world problem. A treatment of these problems [1] lies, however, beyond

[1] For an argument in favor of a remission or postponement of the Allied indebtedness, see the article by the present writer entitled "The State of Our National Finances" in the *American Economic Review* for March, 1922.

the limits of this chapter, which is concerned primarily with calling attention to the fundamental elements in the reëstablishment of the international economic equilibrium. In this reëstablishment it is evident that the international financial and commercial factors of business stability have become of supreme importance.

CHAPTER VII

PUBLIC WORKS AS AN AGENCY OF CONTROL

John B. Andrews

As most work is carried on under private management it is to be expected that the chief responsibility for regular employment should be thought of as falling upon private employers. But the managers of public activities—though directly controlling fewer employees in the aggregate—are in a double sense concerned. Not only is a municipality, for example, under special obligations to avoid for its own employees the distress due to irregularity of work; it is also likely to be charged with part of the cost of maintaining—at least above the starvation line—those who are laid off from private employments.

This two-fold responsibility has naturally suggested that municipalities should at least furnish to their own minimum of necessary public employees the assurance of regular work throughout the entire year. To this there has been added a second proposal, that a part of public work be reserved during those seasons of the year when there is greatest activity in private industries, and pushed forward with

vigor when such industries are slack. But in addition to public work so distributed as to reduce seasonal unemployment there is concern for the great cyclical periods of industrial depression, coming perhaps at seven-year intervals. It is urged, therefore, as a third proposition that these recurring emergencies, less frequent but no less certain, should be similarly met to some degree by reserved funds for timely expenditure upon public works. Public work, it is thus argued, should be made to act as a sponge, absorbing in bad years as well as in slack seasons some of the reserves of private employment and setting them free again with the return of prosperity in private business. Finally, it is seriously maintained that if skilfully timed and efficiently administered a public policy of this kind would be of substantial aid in stabilizing private business.

Is the volume of public work sufficient to furnish a stabilizing influence upon fluctuations in private industry?

It is estimated by Otto T. Mallery,[1] who has recently studied this problem, that government outlays in America have grown to about $900,000,000 a year, of which one-third or $300,000,000 might be set aside annually in accumulating a reserve for increased expenditures during periods of partial business collapse. The periods for reserve accumulation,

[1] See especially Report of President's Conference on Unemployment, and Unemployment and Business Cycles, a forthcoming volume of studies conducted through the National Bureau of Economic Research.

he concludes, are on the average about four years—thus supplying a possible total of $1,200,000,000 public reserve fund to plump into the deepening trough of cyclical depression. Of this very tidy sum Mr. Mallery thinks two-thirds or $800,000,000 would normally be expended in wages. This, added to the non-reserve-year pay-roll of $600,000,000 offers a possible expenditure during one year—when the effects of industrial depression become ominous—of $1,400,000,000 for direct employment. This would be of enormous benefit in avoiding acute distress.

Against the $1,400,000,000 is set off an estimated loss of wages among factory employees alone for the exceptionally slack year, May 1920-May 1921, of almost double this amount. But it is generally agreed that numerous related factors need to be taken into account in measuring the possible influence of public work expenditures. It is not alone the direct employment through reserve funds that is important in steadying business. Every additional outlay for men or materials creates a far-reaching indirect demand for employment. In the typical depression year there would presumably be $700,000,000 available for purchase of materials. There would also be the additional stimulus to industry occasioned by the larger demands of workmen directly and indirectly employed. The building of bridges, for example, may stimulate a dozen different secondary activities including not only the production of steel and cement but also the less obvious

production of the tools and vehicles of manufacture and transportation, to say nothing of replacement of clothing and sustained demand from employed breadwinners for the means of maintaining their accustomed standard of living.

Moreover the holding back of public work in the critical time of over-expansion of business may (in addition to its psychological effect upon private promoters) tend to lower somewhat the otherwise panicky peak of the boom. It is believed that even a relatively small but carefully timed reservation and acceleration of expenditures at the most critical periods of the industrial cycle, would result in far-reaching benefits. To affect transactions by as little as one-tenth of the normal outlay, it is thought, would be sufficient at the critical time to turn the tide. If this is sound reasoning then the possibility of mitigating the injurious effects of industrial depression through the steadying influence of public works, is considerable.

Is there any evidence that governments will attempt to utilize their public-works as a method of stabilizing employment and production?

It has been proposed from time to time that government agencies—city, state and national—adopt as settled policy the long-range planning of public works and consciously adjust expenditures as an offset to extreme fluctuations of business activities. The English statistician Bowley, estimated in 1909 that if in the United Kingdom a fund were set aside

for public works to be pushed ahead in times of depression, an average of $20,000,000 yearly, or about 3 per cent of the annual appropriation for public works and services, would be sufficient to balance the wage loss from commercial depression.[1] In England, where the practice of grants-in-aid from the national government to local authorities has long furnished a guiding stimulus in such matters, a reserve program has been developed for government expenditures, especially upon roads and in afforestation. Germany has recently added the coöperative influence of the national government to the settled policy of municipal reserves for use in auspicious seasons, and France has ingenious plans for discussion. The Dominion of Canada has for several years frankly acknowledged the responsibility of the national government and by financial subsidies as well as by trained direction, has assisted the provinces and municipalities in meeting the problems of unemployment.

Frequently in the past generation in the United States—during which period there have been no less than five depressions marked by unnumbered millions of unemployed men and by billions of idle capital—it has been urged that public works be used to steady employment.[2] It was a unanimous recom-

[1] Royal Commission on the Poor Laws, Minority Report, p. 1195.

[2] For illustration, by the American Association for Labor Legislation since 1914, and by the American Federation of Labor and the Chamber of Commerce of the United States in 1922.

mendation of the President's Unemployment Conference in 1921, but the federal administration permitted even a mild expression of this purpose to be rudely throttled in the Senate [1] in February, 1922.

In two states, Pennsylvania in 1917 and California in 1921, specific legislation was enacted providing for the more extensive prosecution of public work in slack seasons.[2] In Pennsylvania, where the administrative machinery was set up and an initial $40,000 was appropriated in 1917, authority was given for the expenditure of the fund in the fall of 1921 when wide-spread unemployment existed. However, "numerous technical difficulties prevented its immediate use" [3] and not until the summer of 1922 was the fund expended in improvements around the capitol in Harrisburg. The California law provides for "extension of the public works of the state . . . during periods of extraordinary unemployment caused by temporary industrial depression." The board of control is to secure from all official sources tentative plans for such work, and the appropriate state agencies are required to keep constantly advised of industrial conditions affecting the employment of labor. If upon inquiry extraordinary unemployment is found to exist, the board of control is authorized to dis-

[1] The Kenyon bill (S. 2749), *Congressional Record,* Feb. 16, 1922.

[2] Pennsylvania, Laws 1917, No. 411; California, Laws 1921, Ch. 246.

[3] Pennsylvania Department of Labor and Industry, *Monthly Bulletin,* July, 1922, page 25.

burse the available emergency fund among the various state departments for extension of public works in accordance with the plans submitted, including the purchase of materials and supplies. The importance of previous planning for such activities was stressed in California when it was found in the winter emergency of 1921-1922 that $87,000,000 was available for state, county and city work but only a very insignificant amount could be expended due to the lack of advance planning.[1]

Legislative beginnings have thus been made by two states, but the actual experience to date is so slight as to be practically negligible. Present difficulties in the administration of such provisions can best be brought out in discussing the more extensive experience of American cities in providing employment through public works in time of business depression.

Of course efforts to avoid distress by means of public employment are not new. In 1895 two-thirds of the cities of Massachusetts were furnishing such emergency work.[2] During the severe unemployment crisis of 1914-15 over 100 cities throughout the country made special provision for carrying on public work of various sorts, such as sewer-building, street and road-making, quarrying, forestry, drainage, waterworks, building, painting, and even clerical du-

[1] Report of Mayor's Unemployment Committee, San Francisco, Winter of 1921-1922.

[2] Report of the Massachusetts Board to Investigate the Subject of the Unemployed, 1895.

ties. The work was maintained for periods ranging from less than a month to more than six months; thousands of men were employed in from two-day to two-week shifts, and hours and rates of pay were as a rule the same as for regular employees on the same grade of labor. In the majority of cases the officials in charge declared that they had secured full efficiency from the workmen, while some even stated that necessary work had been done at a distinct saving.[1]

Many cities in the United States were found speeding up their public works in the early months of 1921, for the purpose of avoiding a wasteful temporary-relief treatment of the unemployed.[2] This was, at least in part, the incentive which led New Bedford to hasten the construction of much needed schools; Cleveland to hasten toward completion the construction of six large public works costing $15,000,000; Minneapolis to sell bonds amounting to $980,000 to finance public work; Philadelphia to consider spending a million on street repaving; and Milwaukee to plan public works expenditures totalling $10,000,000 in 1921. Smaller cities from Worcester and Lynn to Seattle and Yakima reported work undertaken under public auspices to relieve unemployment. Detroit's appropriation of $716,000 for the relief of the unemployed was followed by

[1] Commons and Andrews, Principles of Labor Legislation, 1920 edition, page 314.

[2] See article by the writer "Reducing Unemployment by Planning Public Works" in *National Municipal Review*, Vol. X, No. 4, April, 1921.

the mayor's recommendation that the city begin immediately the construction of a bridge over the river to Belle Isle for which $3,000,000 was voted at the previous municipal election. And an interesting suggestion in Jamestown, New York, found expression in a resolution adopted by the city council which favored taking over temporarily the closed-down local brick yards for the purpose of manufacturing the 2,160,000 bricks needed by the city for the next summer's street paving.

There is always danger in time of an unemployment crisis that all officials will not distinguish sharply between "made" work—sometimes foolishly urged in time of emergency—and public work that is useful. Experiences with emergency work have not always been gratifying. Poor work, increased expense to the community, and political favoritism in the selection of applicants are among the faults which have frequently interfered with the accomplishment of expected results. On the whole, however, the conviction has been growing that these flaws are not inherent, but due to poor administration, and that, if properly managed, emergency work can be made an important agency in maintaining during slack periods the labor reserves needed when industry is booming.

Increasingly cities are recognizing their responsibility for dealing more intelligently with unemployment. Many of them in their methods already distinguish between the unemployable and the unem-

ployed. That is a great gain. A little forethought is now given to the important public task of anticipating the fluctuating demands for labor. Some cities have established public employment bureaus which are rendering a valuable social service in furnishing information to individual employers seeking help and to individual workmen hunting jobs. This is an important public function which in neutral and efficient hands justifies itself in somewhat the same way that our system of public education has been justified. But probably no city in this country has yet utilized these employment information stations as a part of its long-time advance planning of public works expenditures. The principal reason for this is not, as might at first be supposed, the inefficiency of the public employment service. Some of the bureaus have information of great value. Moreover it is no longer a lack of information in the hands of specialists in credit matters, that prevents public officials from predicting with reasonable accuracy when business depressions are coming. On this part of the problem real scientific progress has been made. The arrival of business depression with resulting unemployment can now be roughly predicted months in advance. It must be admitted that lack of progress by our city officials in planning to meet unemployment crises is due in most instances to their failure to give any consideration at all to any plan for counteracting fluctuations in the labor market, as an

item in determining the proper time for expenditures upon public works.

There are, of course, additional reasons for this lack of forethought regarding unemployment. Some of these are perhaps inherent in our two-party political system with the temptation to "make a record" under the name of economy, which so frequently turns out to be false economy. On the other hand, politicians of a certain type find a strong incentive to spend during their own brief administrations all available funds. Some of the difficulties are bound up with legislative restrictions which with care might well be changed. Extensive public work is frequently impossible because of charter limitations on the expenditure of local money. For example, the common council of Bridgeport, aroused by much unemployment and the threat of more early in the winter of 1920-1921, authorized a $500,000 bond issue for public work. Under its home rule act, the city could issue bonds upon a referendum, but when the state legislature is in session it is usually both quicker and cheaper to get authority from the state capitol. And weeks later Bridgeport was still waiting the desired approval of the legislature. Since most state legislatures meet in regular session but once in two years, reliance upon their action after a crisis has developed is likely to result in disappointments and costly delay.

However, despite many perplexing obstacles, cities in various parts of the world are now attacking the

problem of unemployment with a sense of community responsibility. It is at last coming to be recognized, also, that to wait until the emergency has overtaken the community before the movement to provide public work is set on foot is wasteful and productive of unnecessary hardship. Public officials are more and more turning their attention to preparing in ordinary times for the period of stress which experience has shown is likely to follow in a few months or a few years.

In a survey made under my direction in 1915 [1] of the experience of 115 different communities in attempting to deal with the exceptional unemployment of the depression of 1914-15, it was found that many American cities were then intelligently planning to do their part toward avoiding similar disaster in the future. Several progressive communities made specific plans to reserve work on unimproved parks, sewers, and streets for future periods. Several, also, without planning definite undertakings, issued bonds or established contingent funds to provide the resources when needed. In Alameda, California, a special annual tax of one cent on each $100 of taxable property was established in 1915 to provide a fund for hiring on public work "unemployed or indigent residents."

Possibilities for improvement in present practices were shown by more intensive studies in several

[1] See American Labor Legislation Review, Vol. V, No. 3, Nov., 1915.

cities, including Boston. It was found, for example, that Boston's experience with a working force in contract paving jobs ran as follows:

PER CENT OF MAXIMUM EMPLOYMENT BY MONTHS IN 1912 AND 1913

	Jan.	Feb.	March	Apr.	May	June
1912	3	6	12	47	78	100
1913	0	0	2	26	65	92
	July	Aug.	Sept.	Oct.	Nov.	Dec.
1912	89	95	92	96	93	24
1913	100	92	99	74	88	32

This tabulation, as F. Ernest Richter pointed out at the time,[1] shows a striking correlation with mean monthly temperatures, but an important influence is the ending of the fiscal year on January 31. Although the budget is made up in November, the council with new members which must pass on the budget sits first in February, and it is April or May before many new contracts can be let.

Contrast the above with possibilities in Cortland, New York, where the charter gives the public works department power to pave or repair any street, build sewers or lay water-mains without a public "letting." It was found in December, 1915, that the Cortland board designates work upon streets three years in advance and keeps its labor constantly employed. The board, by the way, was non-partisan and had been in office twenty-one years.

In May, 1919, W. Clifford Clark, of Queens Uni-

[1] American Labor Legislation Review, Vol. V, No. 2, June, 1915, pp. 245-264.

versity, sent a questionnaire to 50 Canadian cities, and from 36 replies learned that at least eight of these cities construct sewers or water-mains during the winter months as definite policy. Thirteen of the other cities had adopted this plan on occasion to relieve unemployment. The kinds of work pronounced highly or fairly successful in winter were sewer work in rock, tunneling, deep excavating, heavy cuts and fills in grading work, concrete construction in large bulk (such as heavy bridge abutments), and construction work in swamp sections where sub-surface water prevails. The degree of success is often dependent on preparation made before the ground is frozen, especially in some construction work where shafts should be sunk before the extreme cold weather.

For a decade Duluth, Minnesota, has reserved much of its sewer work for winter, and reports that the frozen surface proves of decided advantage in retaining the walls of the trench and that the cost of construction is no greater than in summer. Other cities have experienced a slight increase in winter construction, which they maintain is counterbalanced by a smaller outlay for charity relief and by the greater efficiency resulting from keeping the regular force of workers intact throughout the year.

Such foresighted arrangement of public work is apparently capable of considerable extension, and may be efficaciously used to counteract in some degree cyclical as well as seasonal fluctuations. In

each community or country a program of the amount of public work contemplated for several years in advance could be laid out and then carefully planned to be executed in the lean years. Thus public work, instead of declining and thereby accentuating the depression, as is now often the case, would exert a strong influence toward stability. European experience shows that it is essential to the success of such a program that the work be done in the ordinary way, the workers being employed at the standard wage and under the usual working conditions and hired on the basis of efficiency, not merely because they happen to be unemployed.

During the brief period of unusual unemployment in the winter of 1918-1919, there was a very general resort by American cities to the remedy of public work. A large amount was readily available, since all but the most necessary projects had been postponed during the war. The federal department of labor listed 6,285 pieces of work to cost $1,700,000,000. In Ohio and New York the governors called special conferences of state and city officials with a view to pushing public works. It is difficult to learn the exact effect of this and of similar action in a number of cities, but in the opinion of the special employment assistant to the secretary of war, such activity was the main cause of the decline in unemployment which began to be noticeable by the spring of 1919.

It is significant that the still greater period of

unemployment reaching its climax about May, 1921, afforded further illustration of the increasing tendency toward the use of planned public works. Partly because the war years had been a period of retrenchment in such expenditures there was an unprecedented sale of municipal construction bonds, afterward stimulated to some degree by the activities of the Association for Labor Legislation and the President's Unemployment Conference.

As the local use of public work for relieving unemployment has spread, city officials have increasingly felt the hampering effect of charter limitations on the expenditure of money. Many makeshift devices have been adopted for defeating these restrictions, such as raising money by public subscription, borrowing without interest, or transfer of funds between departments, and in some cases business men have had to furnish bonds to save the city officials from liability. Consequently the conviction has been growing that budgetary methods and, if need be, city charters must be modified to permit greater freedom in the use of money for these undertakings.

The principle under discussion has taken firm hold in many countries among those interested in combating involuntary idleness. In 1913, as the result of careful studies in many countries, the following recommendations were laid before the International Conference on Unemployment: (1) that public works be distributed, as far as possible, in such a way that they may be undertaken in dull seasons

or during industrial depression; (2) that budget laws be revised to facilitate the accumulation of reserve funds for this purpose; (3) that permanent institutions be created to study the symptoms of depression in order to advise the authorities when to initiate the reserved work; (4) that such work as land reclamation and improvement of the means of communication, which would tend to increase the permanent demand for labor, be especially undertaken; and (5) that in order to secure the fullest benefits from the reserved work, contracts should be awarded not as units, but separately for each trade. The first official International Labor Conference, meeting at Washington in October, 1919, recommended to Member countries that they should "coordinate the execution of all work undertaken under public authority, with a view to reserving such work as far as practicable for periods of unemployment and for districts most affected by it."

In 1921—with three and one-half million less workers employed in industry than a year earlier—American legislators introduced resolutions in Congress and state assemblies declaring that "it is sound governmental policy to prosecute public works during periods when labor and material are not fully absorbed by private industry." They recognized that "the immediate prosecution of such public works will give employment to large numbers of persons now seeking employment, not only directly on the public works, but indirectly upon the manufacture

of the materials required." With little discussion and without much interest in legislative halls these proposals all failed of passage. The federal government's financial participation in the national unemployment crisis was in effect limited to its appropriation for road construction in accordance with the federal-state coöperative plan previously established.

But public interest in this subject is increasing. Whenever a tidal wave of unemployment sweeps over the country there are anxious questionings as to the responsibility, and as to the failure to utilize certain definite measures of prevention. Distress—bread lines—soup kitchens—are but the final sharp reminders that lack of forethought is costly. Significantly, with each of these ever-recurring industrial depressions, it is becoming clearer that the only remedy for unemployment is employment. Serious inquiries are under way and a foundation of fact is being prepared as a basis for intelligent action. There is special need now for further study by experts in municipal government to determine what are the best means of overcoming political obstacles that make unnecessarily difficult the planning and administration of public works to reduce unemployment. In this direction lies one of the paths toward the stabilization of business.

CHAPTER VIII

THE PSYCHOLOGICAL FACTORS IN STABILIZATION

Walter Dill Scott

EVERY typical American is ambitious to make a contribution to society. In this generation he desires to make that contribution by becoming associated with some activity that is likely to attain distinct progress.

Our very best young men and women have been particularly attracted by the learned professions. These are primarily the phases of human endeavor in which service to society is the recognized aim. This applies equally to theology, law, medicine, teaching, and the traditional types of engineering. Historically, the learned professions may have been conservative, but the last seventy years have been for them an epoch of progress. The professions are still attractive, but they are meeting severe competition in other fields in which distinct service is being rendered to society and in which great progress is being made.

Thus, special progress was made in agriculture in America in the years from 1850 to 1900. In these

five decades the quantity of our agricultural products was increased almost fivefold, and America thus became the great food producing nation of the earth. This unprecedented progress was not merely the result of rich natural resources, or of favorable economic conditions, but was based primarily upon human endeavor. Intelligence was applied to agriculture as never before. The inventors transformed the scythe and the cradle into the mower and the self-binder. The scientists made new discoveries in chemistry, biology, and physics as they related to agriculture. The engineers drained the swamp and irrigated the desert. Workers were inspired with an ambition and guided by a wisdom unprecedented in agriculture, and the results secured both in American and in foreign lands were those that normally would result from such causes.

Progress in manufacturing in America did not keep pace with the progress in increasing our production of food. Wages of industrial workers were higher here than in most other lands, and our protective tariff could not protect us from the lower cost of production secured by our competitors. Even the efficiency of the American worker and the Yankee wit and the daring of the manufacturer could not keep us from importing enormous quantities of manufactured products. About 1880 the term "scientific management" began to be used. This term was frequently limited to the Taylor efficiency system, but it referred equally well to the systematic

attempt to apply to manufacture every available science. The introduction of adequate systems of cost accounting made it possible to discover and to eliminate expensive and unnecessary operations. The invention of labor-saving devices enabled the manufacturer to produce a given product with fewer workers. The standardization of products resulted in quantity production with its attendant reduction of cost. The application of physics and chemistry revolutionized many of the important processes of manufacture. Every advance made in America was imitated abroad and every improvement of our competitors was seized upon and adopted by us. As a result of all this, more progress was made in industry in the four decades from 1880 to 1920 than in any similar preceding period.

The advance in agriculture and in industry made necessary a corresponding progress in commerce. There is but little advantage in greatly increasing the supplies of foods or of manufactured goods unless there is a corresponding increase in the available market to absorb them. This condition resulted in the world-wide struggle for expanding markets and in the creation of such new agencies and methods of commerce as department stores, chain stores, mail order houses, trusts, systems of credits, and improved facilities of shipment on land and sea.

The facts warrant the statement that since 1850, the world has experienced the greatest epoch of progress in each of the learned pro-

fessions and in each of three other fundamental phases of human endeavor—in agriculture, in industry, and in commerce.

Such progress is, of course, not the result of accident, but is the result of very definite causes. It will be the task of later historians to discover what all the causes are, but it would seem that prominent among these causes will be found first, a conscious need for progress, second, initiative in striving for progress, and lastly, an effective application of science in producing the progress.

Conscious need was apparent in securing the progress in agriculture. From 1850 to 1900 there were more inhabitants in the world than ever before, but there was not a day in those 50 years when there was enough food for all.

Initiative was apparent in the particular agriculturists of the period who achieved the success, as they were pioneers, owners of their own farms, followers of great ambitions, and fugitives from settled communities and established customs.

No one questions the statement that the application of the physical and the biological sciences was a potent factor in securing the progress in agriculture. This application is the theme for unnumbered reports printed by government bureaus, and by public and private agencies.

Conscious need, initiative, and the application of the physical and biological sciences could be shown to have been quite as fundamental in the progress

in industry and in commerce as in the progress in agriculture.

There has been widely expressed hope that the World War with all its destruction would usher in a new epoch in some phase of human progress, and that this progress would be quite the equal of any to which reference has been made. There are many who believe that we are now in the early stages of such a period of progress, and that the field in which this progress is taking place is what may for our purpose be spoken of as human engineering. The term human engineering applies to all efforts made to enable the individual to promote his own welfare and the welfare of society as a whole. We are still so near the beginning of the era of progress in human engineering that it may be hazardous to state how far we have proceeded, but at least we may discover whether conscious need, initiative, and the application of science are dominant factors in our assumed progress in human engineering.

The conscious need for progress in human engineering is thoroughly recognized. Men are not now working together happily and effectively. There is said to be lack of control in the home, restlessness in the school, apathy in the church, shirking in the shops, dishonesty in the counting houses, crime in the city, and bolshevism threatening all our institutions.

That initiative is changing the methods of handling men is apparent even in such stable forms of

social control as the state, the church, the school, and the family. In all these, change is the order of the day. The traditional is regarded with suspicion and the new is constantly sought. Often this initiative is undirected by sound reason, as is the case in Russia. It then assumes a form of radicalism so destructive to state, church, school, and family that the whole civilization is threatened.

The application of science to the progress in human engineering is less apparent than is the conscious need and the initiative as applied to such progress. The sciences that have been so effectively applied in producing progress in agriculture, industry, and commerce are mainly the so-called natural sciences. The sciences that are being applied to progress in human engineering are mostly the social sciences. The natural sciences are highly developed, and have been applied for so many years that their success is apparent and universally recognized. The social sciences are not highly developed, and their applications have been so few and so recent that their success is not so apparent and not so generally recognized. However, psychology, pedagogy, and sociology are as certainly being applied to human engineering as physics, chemistry, botany, and zoölogy are being applied to agriculture, industry, and commerce. Accordingly, each of the three causal factors noted in the progress in agriculture, industry, and commerce is discovered also in our methods of handling men.

It is impossible to state definitely the beginning and the end of any period of progress in any permanent form of human endeavor. However, there is sufficient evidence to justify such limits as 1850 to 1900 as the era of the great progress in agriculture; 1880 to 1920 for industry; and from soon after 1880 to 1920 for commerce. There is also evidence to show that under the influences of such causes as conscious need, initiative, and the application of science, an era of progress in human engineering began in 1914 with the outbreak of the World War.

Progress in the learned professions, in agriculture, industry, and commerce has, like the ballot, been in the hands of the male members of society. Progress in human engineering is not only contemporaneous with the Nineteenth Amendment, but it seems to be the field of human endeavor in which the woman is destined to be quite the equal of the man.

In the early stages of profound change it may be difficult to decide whether the change is one of progress or regression. Many would have denied that the changes in 1855 denoted unprecedented progress in the learned professions and in agriculture, or that the changes in 1885 denoted unprecedented progress in industry and in commerce. It may be impossible to demonstrate that present changes denote an epoch of progress in human engineering, but evidence is accumulating that such is the case. Indeed some assert that the changes are now so far advanced that it is possible to discover the significant agencies em-

ployed in producing the progress and to take steps to increase their effectiveness.

Vocational Guidance, Education, and *Motivation* are such agencies. These have taken on new meaning and assumed an importance not previously anticipated. These three agencies all apply to human engineering in the home and the school, in industry and commerce, in military and civil activities. Wherever progress is being made in human engineering, it manifests itself directly in the changes taking place in vocational guidance, education, and motivation. These changes might be illustrated from any field of human endeavor, but they can be most definitely and helpfully illustrated from industry in the form it has taken since the so-called industrial revolution, because the changes taking place there are so apparent and affect the lives of so many millions of men and women.

In the past the ideal of vocational guidance, or of vocational selection, in industry has been *to secure for each job the best worker at the least cost.* This has not necessarily resulted in a disregard of the interest of the worker. Even in slavery the master commonly regarded the interest of the worker, took pains to assign tasks according to the strength and the aptitude of the members of the gang, and generously rewarded efficient service. The absentee owner of a manufacturing plant has expected his superintendent to hire efficient labor and to keep the pay roll down. But he has also expected his super-

intendent to treat his workers in such a manner that their loyalty would be retained. Vocational guidance and vocational selection have usually been carried out beneficently by the employer, but they have been carried out primarily in his interest.

In the new conception of vocational guidance and vocational selection the emphasis is radically changed. This newer point of view is that *every worker should be placed in that position where he has the best possible chance to make the most of himself.* This must be interpreted as consistent with the interests of the employer and with the larger interests of society. According to this conception, the interest of the employee is first. However, his interests cannot be permanently served unless due regard is given to the interest of the employer and of the public. If the interests of the employer are disregarded, he will fail and cease to give employment. If the larger interests of the public are disregarded, the protection and the favor of the public will be forfeited. Emphasis on the interest of the worker is so new and so novel that no firm is able to carry it out completely at the present time. This ideal, however, is characteristic of the present period of progress and will be more nearly attained with each succeeding year.

Not only was the ideal of vocational guidance and selection low in the past, but the method of accomplishing the ideal was crude and ineffectual. The individual found his life calling, and the vacant job

was filled, by systems that were stupidly crude. In India and in other lands the caste system determined the occupation of each individual. There, by the will of the gods, each youth was compelled to follow the occupation of his father. It might be added that something akin to the caste system has compelled the girls of all lands to follow in the occupation of their mothers. At one time the guilds of Europe determined the trade each apprentice should enter. During recent decades the available job has been the most dominating influence in determining the career of our industrial workers.

The ambitious youth and the discerning employer have recognized their lack of wisdom and have sought some simple, dependable method of vocational guidance. Such methods have been sought in all lands and in all centuries. Some of them have for a time attained great vogue and have numbered among their adherents many men of wisdom. Among such systems the following are recalled: astrology, augury, chance as manifested in drawing of straws, casting of lots, or the flipping of coins, chirography, chiromancy, character analysis, divination, fortune-telling, horoscopes, hypnotism, intuition, magic, mediums, mind-readings, necromancy, omens, occultism, oracles, palmistry, phrenology, premonitions, psychological tests, soothsaying, sorcery, sortilege, subconscious "hunches," stigmata, talismans, trade tests, and telepathy.

When in the past we saw the absurdity of follow-

ing these practices in placing the individual in employment, we were forced to depend upon the judgment of the maiden school-teacher, the indulgent mother, the ambitious father, the listless recruiting officer, the mercenary employment agent, or worse yet, the indifferent employment clerk. The method of vocational guidance was in practice even worse than the ideal; for it did not succeed in securing for each job the best worker, and at the least cost.

The conscious need for progress in vocational guidance and the untrammeled initiative in discovering and applying methods of vocational guidance made relatively little advance until about the period of the beginning of the World War. Then real progress in vocational guidance was made when we began to employ scientific procedure in a large way in our study of the fitness of applicants for particular positions.

The study of human nature is not an exact science. The first psychological laboratory was established about 1880, and thirty or forty years were necessary in which to lay the foundations that have made possible even an approximation to the scientific study of the applicants for positions in industry. This study includes measurements of the inherited capacities and also of the acquired skill of the applicant. Due consideration is given to the desires and the ambitions, the industry and the stability, the aggressiveness and the initiative, as well as to the physical strength, the mental alertness, and the trade

skill. Such a study neglects nothing that is significant in the previous experience of the applicant and in the reputation he has sustained with his fellow workers and with his superiors.

The purpose of judging men in industry is to determine their fitness for particular positions. The value of such judgments is slight unless there is a fairly good understanding of the available positions. In the past there seems to have been almost no systematic attempt to make what we to-day speak of as job analysis or occupational descriptions. Ten years ago there was not an industrial organization in America that had any serviceable occupational description of its various jobs. To-day most of our larger industrial organizations are preparing some form of occupational descriptions. These descriptions state for each job the preliminary experience necessary or desirable and the subsequent positions that should be considered as in the regular line of promotion. They note the beginning wage, the rate of promotion, the maximum and the average wage, and the collateral opportunities. They describe so far as possible everything pertaining to the job such as its character as permanent or temporary, dirty or clean, standing or sitting, indoor or outdoor, solitary or in group, routine or varied, with constant or intermittent flow of work, under direct or merely formal supervision; its condition as to responsibility for the work of others or for the protection of property; the class of superiors, subor-

dinates, or customers met, the hours of labor, and the supply of workers available; and its history as to the frequency and the causes of the labor turnover in the position. The last and the most difficult part of the occupational description is a definite statement of the type of individual most likely to succeed and the types most likely to fail on the job.

Significant progress has already been made in developing these necessary tools for vocational guidance, i. e., reliable methods of judging applicants, and dependable and complete occupational description of all the jobs in the plant. That there may be effective use of these tools of vocational guidance there must also be in each plant an executive in charge of personnel. He must be skilled in training men to fit jobs and he must have authority and skill in adjusting jobs to meet the needs of the workers. He must retain the confidence of the workers and he must be an important officer of the company, for it is his task to attain the ideal of vocational guidance. Such directors of personnel are already being appointed and they are doing much to make it possible for every worker to be placed in that position where he has the best possible chance to make the most of himself.

The second agency mentioned in progress in human engineering is that of education. In the past our conceptions of education were such that it seemed foreign to the field of industry. It was conceived by some as limited pretty much to "readin',

'ritin', and 'rithmetic." Others conceived it to be limited to the acquisition of knowledge, to the committing to memory such facts as the deeds of our ancestors, the statement of the laws of nature, or even the laws of grammar. The point of view of the school man was that we should have culture for culture's sake, art for art's sake, and pure learning uncontaminated by any practical application. The business man looked upon education as something theoretical and impractical; as a process that must be completed and from which the youth must be graduated before entering into his life's work. The school man and the business man agreed in assuming that education was confined to the schoolroom, and that any attempt to mix education and business would result in corrupting the school and weakening industry. Over the door of the employment office of a large and progressive factory hung until recently the significant statement, "College Men Not Wanted." The conscious need for progress in the education of those preparing to enter industry could not have been more eloquently stated than in those words "College Men Not Wanted." This is an actual expression of the suspicion on the part of employers that one might readily receive too much education and thus be incapacitated for the serious responsibilities of business.

The initiative of the educators was made apparent by their creating for those preparing for industry such institutions as manual training schools, vesti-

bule schools, continuation schools, trade schools, industrial schools, technical schools, kindergartens, and elementary schools, as well as various types of apprenticeship systems. No significant progress could be made in applying science to education until the various social sciences had stated the aim and provided a helpful definition of education in industry; and until educational psychology, the newest of the social sciences, had indicated how such an end might be attained. In keeping with the teaching of the social sciences, education in industry has been defined simply but satisfactorily as "Profiting by Experience." This new conception wipes away all the sharp contrasts between formal and informal education or between the school and industry as centers of education. If education is profiting by experience, it is apparent that experience may be had in the shop as well as in the schoolroom. It is likewise apparent that education need not end at the sixteenth year, for a man at sixty may yet profit by his experience. The conception of education as profiting by experience has led to the creation of a new ideal in the school and in the industry. This new ideal of education in the school is that every phase of the school work should have a bearing on the whole life. The new ideal of education in industry is that *the education of each individual should be continuous throughout his entire period of employment.*

In considering the education of his men the employer must think of each employer as a worker, as

a possible potential junior officer of the company, as a member of a family, as a member of the community, as a member of a church, as a citizen of the State, and as a human being. The education in industry must provide for the continuous development of each of these phases of the life of the employee. As a worker the employee may have had previous experience, but it is the task of his superiors to see that he continues to increase his technical skill. If he shows any signs of leadership, a carefully planned series of transfers, promotions, and courses of formal instruction may equip him to become a valuable minor executive of the company. By the hygienic practices enforced in the shop, he may be taught the laws of hygiene essential to the health of a city and so become a better member of the community. By the helpful coöperation received from his superiors and his fellow workers he may be taught a greater appreciation of the fact of the brotherhood of men and the Fatherhood of God and so become a better member of the Church. By participation in the shop discipline, he may be taught the essentials of a democratic form of government and so become a better citizen of the State. By a study of the service the company renders the world, and by a recognition of the part he plays in that service, he may be taught the dignity of work and the dignity of the worker, and so be elevated in his own estimation and inspired with an ambition to become the highest type of human being.

Education in industry is accordingly not a function that can be left to the unguided worker. It is not a responsibility that can be shifted to the individual foreman and superintendent. It is not limited to such agencies as continuation schools and classroom instruction within or without the plant. Neither is it limited to the casual and incidental experiences that are had in the shop from day to day. Education in industry is progressing slowly, but in some firms it is directed by an expert, who attempts to utilize all the equipment and all the personnel of the plant in assisting every employee to profit by his experience during the entire period of his service.

The third agency mentioned in progress in human engineering is that of motivation. The types of motive power used in vehicles of transportation have been greatly augmented during recent years. Although steam, electricity, and gasoline may have always existed they were not commonly and effectively used as motive power. Likewise, the types of motivation in industrial workers have been increased during recent years.

For many centuries fear was the most common incentive to action where large groups of workers were engaged in industrial enterprises. The worker labored on because he feared the lash of the master and the oath of the gang boss, or because he feared the loss of employment with its hunger and want. The better education and the organization of the laborers have weakened the effect of fear as an in-

centive to action. During recent decades the employer has depended less and less on the threat of bodily pain and has substituted more and more the pay envelope as a stimulus to action. The rapid increase in wages and the rumors of even more fabulous rewards during and following the war have caused the worker to be less dependent upon his pay envelope. Employers everywhere recognized the folly of attempting to handle men by the application of the old methods based on fear and wages. They were conscious of the need of progress and their initiative resulted in countless experiments. Many of these experiments were based on the assumption that there was a single incentive to action and a single method of making that incentive effective. We have been passing through the era of panaceas in stimulating men to action. Prominent among these panaceas are profit-sharing, employee representation, industrial democracy, piece rate, bonus, welfare, rigid supervision and inspection, and the open shop.

The application of science in discovering effective methods of stimulating men has been much greater than we are able to appreciate at the present time. The teaching of modern psychology on individual difference has had immediate application. Psychology has emphasized the fact that individual differences are relatively small in our physical qualities and in all qualities which we share with the higher animals; but that individual differences are enormous in acquired traits and in the higher human

qualities, and particularly in the response to different motives to action. This teaching of modern psychology on individual differences has established the fact that some individuals are inspired primarily by fear, others by hope; some by immediate gain, others by remote ends; some by bodily comfort, others by intellectual interest.

The emphasis on individual differences has had no more direct application than has the emphasis on the complexity of each individual in his response to incentives to action. A modern engine will respond to but a single motive power, whether that be steam, gasoline, or electricity. Every human being responds to an indefinite number of types of motivation. It is probable that no human being is enabled to make a maximum exertion unless he is moved by the simultaneous application of several motives. No child is obedient unless parental commands are supplemented by respect. No student makes rapid progress unless the classroom credits are supplemented by interest in the topics of instruction. No industrial worker is efficient unless the pay envelope is supplemented by interest in the work.

Whether we have in mind the psychology of individual differences or the psychology of the complexity of the human response to motivating influences, it may be confidently stated that those engaged in human engineering have during recent years received great benefit from the studies that have been reported under such significant titles as human

instinct, suggestion, initiative, reason, habit, general intelligence, social approval, competition, ambition, pride, loyalty, fear, the constructive instinct, the love of the game, interest, hope, and devotion.

The industrial leaders are to-day conscious of the inadequacy of either fear or the pay envelope as the exclusive incentive to action. Guided by the teachings of modern psychology, they are experimenting wisely in an attempt to discover the incentives to action that will inspire each individual and enable him to use his hand and brain effectively.

Those in the closest touch with the progress being made in vocational guidance, education, and motivation in industry are confident that the earning power of the industrial workers in America will be doubled during the present century by the progress in human engineering. The annual productivity of these ten million industrial workers may be roughly estimated at ten billion dollars. To double this means a gain of ten billion dollars annually. This amount transcends our power of imagination.

Human engineering applies to all efforts made to enable the individual to promote his own welfare and the welfare of society as a whole. Although this discussion is largely confined to industry, an illustration from some other field of human endeavor would serve to make clearer the place of vocational guidance, education, and motivation in our progress in human engineering. This illustration could be taken

from any field, but the recent World War offers some of the most striking illustrations.

When the raw recruits reached the concentration camp in the fall of 1917, they were assigned to their respective units before any attempt had been made to determine their fitness. The officer in charge of a unit was provided with an official document, containing the names of the different positions constituting the unit and the number of individuals to be assigned to each position named, but he was not provided with a statement concerning the personal qualifications essential for the performance of the duties of any position. Furthermore, there was not a man in the whole camp whose task it was to help match the requirements of the position and the qualifications of the recruit. This neglect of information concerning the individual and the absence of information concerning the positions, together with the lack of an organization to place the men, resulted in such a crude form of vocational guidance that the chaos in all our camps was almost as bad as the chaos in the British camps in 1914.

Fifteen months after we had entered the war vocational guidance in the army had become revolutionized. Every recruit was studied as soon as he arrived at camp. Upon his qualification card was recorded all available information concerning his fitness for any form of military service. In this record were included such items as schooling, previous occupation, trade skill, general intelligence, leadership

ability, and preferred type of service. There was available for every position in the organization an occupational description containing a statement of the qualifications desirable or necessary for the successful performance of the duties of that position. In each divisional concentration camp there was a personnel officer with possibly a hundred subordinates. The task of this officer and his subordinates was to direct the work of vocational guidance in the camp. The result of this progress in vocational guidance was that talent was conserved, effective units were organized quickly, and the period of training was reduced.

Progress in education in the World War cannot be described so concretely as can that in vocational guidance, but features in that progress are indicated by such changes from the ordinary regular army procedure as the change from the *memoriter* to the "project" method of instruction; the change in the seat of army education from the army posts to the special schools and to the universities; the change in the conception of the province of education, resulting in a universal system embracing even the generals, as in the school exclusively for generals at Langres, France.

Progress in motivation in the army may be illustrated from Colonel Gordon Johnson's account of the progress the army made in supplying incentives to action to a single soldier. Alvin York, a youthful mountaineer, was drafted and sent to Camp Gordon.

A few days after entering camp he was ordered out to the bayonet drill. He stated to the captain his conscientious scruples against such a drill. According to the traditions of the army, there was only one way to treat a conscientious objector and that was to "treat 'em rough." The captain hesitated to apply the only incentive he knew, because York's calm manner indicated a determination that could not be moved by fear. Accordingly, the captain sent York to the major of the battalion. In response to the major's inquiry York replied that he believed in the Bible; and that the Bible stated "Thou shalt not kill." The major attempted to counter with an appropriate verse, but his memory failed him. Thereupon he beat a strategic retreat by ordering the private back to his tent. He was convinced that threats, punishment, and cruelty would have no effect on York, but that he might possibly yield to some really high motive to action. The major was a religious man, believed our aim in the World War was to "advance the Kingdom of God on earth," and that the Scriptures justified war in such a holy cause. York was ordered to the major's quarters the next evening, but again the major's knowledge of the Scriptures was unable to cope with the situation. These nightly conferences between the busy major and the ignorant conscientious objector lasted for five weeks, till at last the private was convinced that there was Scriptural authority for carrying on what he came to see as an attempt to "advance the Kingdom of

God on earth." Spurred on by this high motive, York entered into every phase of military training with an ardor unsurpassed by any private in Camp Gordon. His major had provided him with the motive to action that enabled him to use his hand and brain effectively.

Every American schoolboy has heard how York captured single-handed 132 German prisoners in the Argonne Forest. A part of the history not so well known is this: Colonel Johnson called York to headquarters to ascertain the facts at first-hand. He asked York how many Germans he had killed, but could get no estimate as to the number. York stated, however, that he had completely emptied his two automatics and had used all the shells from his belt except those in the extreme back. This indicated that York had taken about sixty shots at the Germans. Colonel Johnson said to him, "How many shots did you miss?" His reply was, "Oh, Colonel, I didn't miss none of 'em!"

If in Camp Gordon the army had attempted to use fear as a motive to action, York would have refused to submit and would in all probability have been sent to Federal prison as an incorrigible. By bringing to bear a higher motive to action, the Army enabled York to accomplish his remarkable service. It is impossible to state how much the service of a single soldier was increased by wise motivation, but we can state that it changed a rebellious conscientious

objector into the greatest American hero of the World War.

Some of us are confident that the greatest progress in human engineering will be made not in the fields where the progress can be measured by billions of dollars, nor by the number of Germans captured and slaughtered, but rather in such fields as the home, the school, and the church, in the enrichment of the lives of the industrial workers and in the stabilization of business, where progress is measured by the humanitarian terms of contentment, appreciation, sacrifice, and service.

CHAPTER IX

THE APPLIED TECHNIQUE OF STABILIZATION

Henry S. Dennison

THERE can be no question that since men first began to transact business by means of currency and credit there never yet has been a long period of uninterrupted prosperity; as summer, fall, winter, and spring follow each other with unfaltering regularity, so business boom, strain and crisis, depression, and revival come in a sequence which never varies.

Recognizing these recurring periods, the Dennison Manufacturing Company has evolved the following principle: When we are in a period of moderate prosperity we can look for some sort of change in from eighteen to twenty-four months; when we are in the midst of a riot of prosperity such as marked the closing months of 1919, we can look for a change to begin in about twelve months. It was on the basis of this simple rule of thumb that the company began, watchfully, in January, 1920, to get ready for a break in prices; and when it came in November, it found us prepared. We manufacture shipping tags which are used by producers, retailers, and private individuals in every town and for every con-

ceivable purpose. Our tag sales records, therefore, are a pretty good reflection of general business activity; they show immediately whether people are buying goods and shipping them by freight and express. Along came the first faint thunders of a crisis; the more cautious folk stopped placing orders, and our sales showed a decrease in comparison with the same period of the preceding year. Week by week the decline in our sales continued, but we were not panic-stricken; we knew there was a bottom to the curve, and we knew just about when it was going to be reached.

The temptation, however, to overplay a period of prosperity is very great. It is easy to argue oneself into the conviction that this period is different from any preceding one; that business is in for five years or ten years of the greatest prosperity the world has ever known. How often that sort of talk was heard in the closing days of 1919! How often men declared that they "had a hunch" that things were going to be good for a long time to come! The influence of a universal hunch is tremendous; even a cautious business man is likely to be swept off his feet when he hears from every man he meets reports of booming sales and scarcity of labor and materials. It is hard to resist the pressure of one's own organization for increased production; it is hard to stand against the wave which is nearing its crest.

The crest of the wave is due to the widespread belief in the continuance of the expansion of the

country and its business at a rate which is too great to be maintained and assimilated. While consumption, especially in a country as large as ours, with its constantly increasing standard of living, is capable of indefinite increase, the rate of increase cannot be indefinitely speeded up. Nor can expansion either exactly foresee or exactly match that rate. Overestimates in this regard, overestimates in the individual enterprise of requirements and of future prices, lead to overextension of plant, overpurchases of raw materials and merchandise, increasing size and inefficiency in labor force and in methods of management, and overstraining of credit resources. These effects apply to commerce, industry, transportation, and public works. Whether or not it would be desirable to flatten out the line of business activity to the straight line of growth—and we are inclined to think it would be undesirable to do so—it certainly is impossible to do it. However that may be, it is not the wave itself but the breaking crest of the wave that does the damage. We, therefore, focus our attention upon the crest and try to discover and apply measures which we may reasonably expect to modify it.

But what business needs generally to modify this crest is not less vigilance on the part of individual concerns as to the special conditions affecting particular lines, but a very much larger and more detailed body of information, gathered widely and authoritatively, and distributed promptly and fre-

quently by a reliable agency, regarding conditions affecting all lines that exhibit the currents at work to accelerate or retard the fluctuations of the business cycle.

The sources of this information would be at least the following:

Statistics of inventories and goods on order.
Statistics of production with the ratio to production capacity.
Statistics of construction begun and under way.
Weekly earnings and hours by trades and establishments with the ratio to capacity.
Employment statistics.
Statistics of cost fundamentals.
Factors affecting probable demand for or consumption of specific articles.

And this general information is now most essential as the rise of modern industry with its indirect methods of distribution has removed the original producer very far from the ultimate consumer, and has made it necessary for the former to gauge the requirements of the latter considerably in advance of the actual call for the goods. Supply, therefore, is regulated not by actual demand, but by what the supplier thinks the demand will be. If the supplier's prediction were always correct, there might be no such thing as our present business cycle; but the fact is that at the critical moment the producer is misled by appearances, and produces most actively just when the consumer's demand is about to fall off.

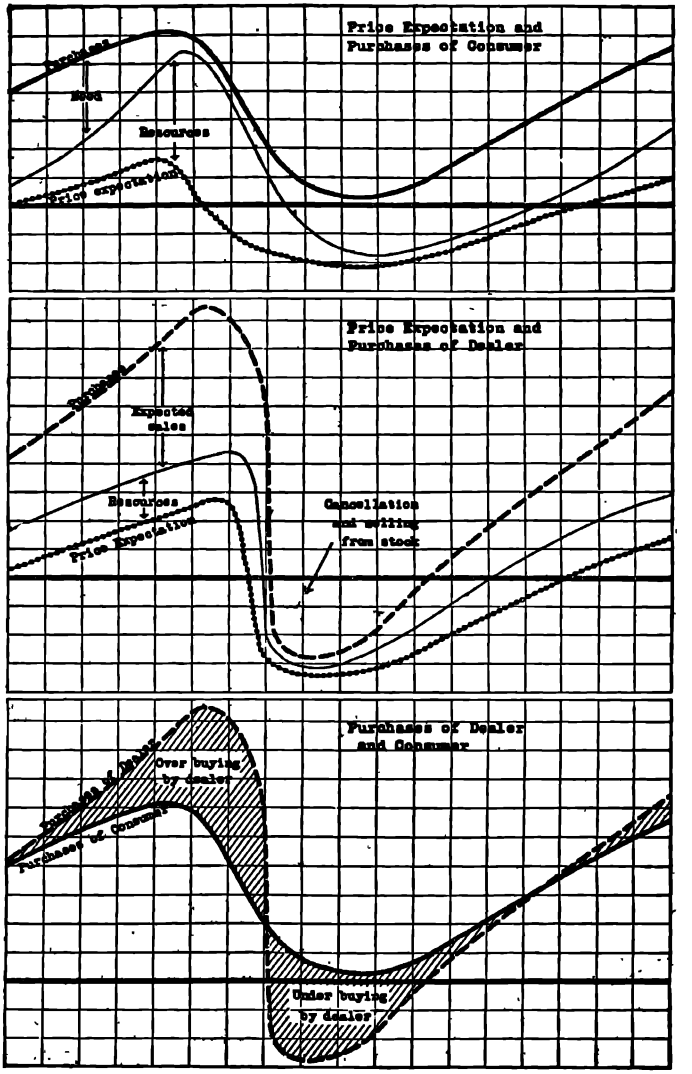


CHART 1. SOME FORCES CONTROLLING SUPPLY AND DEMAND

Chart No. 1 illustrates the point in question. The point it ought to bring out is that there are three principal factors which enter into the effective demand for any article or group of articles. These are needs or requirements, financial resources, and price expectation.

The beaded lines in the two upper sections of the chart represent the purchaser's price expectations. It should be particularly noted that they do not represent what prices are, but show the extent to which his purchases are affected by the purchaser's opinion as to what they are going to be. The heavy straight line represents a neutral price expectation. When the beaded line is above this line, the buyer thinks prices are going up and when it is below, he thinks prices are coming down. The farther it is above or below the neutral line, the greater the expectation is intensified. When the price expectation line turns downward it indicates not an expectation of lower prices, but merely a weakening in the belief that prices are still going up. The appearance of a belief in higher prices is not indicated until the price expectation curve again rises above the neutral line.

The heavy black line represents purchases, and the two spaces between the heavy line and the beaded line represent the buyer's needs and the buyer's resources. In the case of the dealer, his sales expectation is the basis of his needs.

Both the consumer and the dealer buy relatively

more when they think prices are going up, and less when they think prices are going down. In the same way, the consumer buys more when weekly earnings are high and less when factories are shut down and he has less to spend. The dealer's resources probably have little effect on his buying until he reaches his credit limits, or until the crash comes and wipes out his resources entirely. Then his lack of resources helps to limit his purchases until he gets back on his feet again.

In superimposing the consumer's and dealer's charts we have indicated a lag between the two. This lag, in our opinion, was an important factor in the recent depression. The superimposing of the two lines illustrates that on the up grade of the cycle, taking the country as a whole, including the ultimate consumers, we were stocking up with goods, whereas on the down grade we were drawing from stocks.

To provide the producer with that information which will allow him to plan and budget intelligently beyond the demands of the moment is an increasing need of modern industry and commerce. As planning and budgeting become habitual, unbridled guessing will be displaced by more careful estimates—by guesses guided by available facts. The manufacturer has no more important problem than that of forecasting the demand for his products. He cannot afford to be misled by outward appearances, or by such phrases as "the shelves of the

country are bare," or the "shelves of the country are glutted." His greatest need is for timely statistics.

Within the producers' organization perhaps the first executive to need statistics which will enable him to follow a stable policy is the purchasing agent. He is interested in cycles for two reasons: first, in order to gauge the purchasing requirements, and second, in order to gauge prices. For his purchase requirements he may depend largely on the planning department, but within certain limits he will always vary his actual purchases according to the price cycle. To help the purchasing agent the Dennison Manufacturing Company has adopted the following plan:

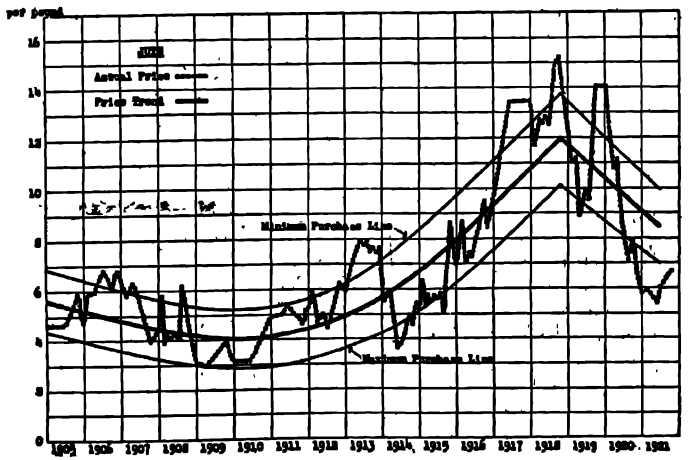


CHART 2. USE OF THE PRICE TREND AS A GUIDE TO PURCHASING

We have figured out roughly the maximum and minimum inventories of each important raw material which we are willing to carry at different periods of the cycle. Then we have charted over a long period the prices of the principal commodities that we purchase, and through this we have drawn a line showing the secular trend. (See Chart 2.) Approximately parallel to and a certain distance above and below this line of secular trend, we have drawn what we call our minimum and maximum purchase lines. Then we vary our actual purchases according to the position of actual prices relative to these three lines. The minimum purchase line represents the smallest amount we dare carry for current needs, and the maximum purchase line represents the most that we consider it wise to invest in inventories. Suppose, for instance, that on a certain material our standard quantity to order is six weeks' supply. If prices are below the line of secular trend we may buy up to twelve weeks' supply, but if prices are above the line of secular trend we may buy not more than two weeks' supply. We make no attempt to gauge the actual turning point, because we believe that it is impossible to hit it exactly. Most purchasing agents who wait for the actual turning point buy too much or too late.

We do not mean to imply that our purchasing is a purely automatic affair but merely that we have found it wise to use certain mechanical guides. The one great temptation always before a purchasing

agent is to buy far beyond estimated needs on a *rising* market. Each day the problem of how much to buy comes up on some individual commodity, and at the same time there seems to be every reason for buying for a long time ahead. Hence, unless some guiding rules are followed, the cumulative result is likely to be such that in emergencies the management will find that it has too much money tied up in inventories.

Naturally, with regard to the items of most account in our particular line of business, we keep closest watch upon the special influences which seek to govern the general trend and fluctuations of those special markets. With them, as in fact with all the lesser ones, we are guided rather than shackled by our general purchasing policy. But on the whole it is very broadly lived up to. It certainly justified itself last year by leaving us with light stocks on hand of almost every item when the prices started to break.

But just as it is essential for the producer to have a purchasing policy which will make for stability, it is also necessary for him to have a flexible sales policy which can adjust itself to the varying conditions of the business cycle. Indeed the need of increased efficiency in selling is going to hold a central place on the stage of business interest for many years to come, for two reasons. First, we have seen the last days of the seller's market and are entering upon a period of competition probably more keen and intelligent than

any we have ever known in this country. Second, while there is still plenty of progress to be made in reducing costs in the factory, there is a still greater opportunity in most businesses for reducing costs in selling. The business executive who begins an intensive study of his sales organization to-day may be preparing himself to meet a very severe test; and even if the trend of the market becomes less strenuous than is now indicated, he certainly cannot lose by such a study.

The study and analysis of the situation, the planning and looking ahead, are the secrets of keeping sales relatively uniform. Our worst week was in February, 1921, when we were running ninety-six per cent normal. All this has nothing astonishing about it, because we accepted the Taylor doctrine that business management is a profession. It is subject to analysis and needs laborious study and experimenting of all sorts, just the same as any other profession based upon any other science. When we came through the depression of 1907, we made up our minds that we would not get caught so badly again. We got caught in 1914, but we were not caught very badly, and this time we were able to utilize our past experiences. We have been making steady progress in regularizing production. The key to the true worth of this movement is to have a sales organization that is yours; that will respond; that will work for and with your concern; not a selling organization that is "on its own."

The actual sales department with us covers the world, and is organized upon the district basis, the districts, thirty-two in number, being chosen to suit the circumstances. Northern Ohio is a district in itself, yet Denver is the center of a district which covers five states. New York City is a district by itself, greater Boston is a district by itself. We chose districts by form and size to make them the most effective sales management units.

There is in charge of each district a District Sales Manager, and an essential requirement is that this manager should do some selling himself. In Denver he can easily devote eighty per cent of his time to this work; while in New York his strictly managerial duties are so exacting that he can give but three or four hours a week to selling. Nevertheless, we lay down as one fundamental that the District Manager should sell because his sales keep him fresh on the job as manager. He knows how to talk to a salesman most effectively after he has been selling himself.

These District Managers are supervised by four General Sales Managers, located at Framingham, Massachusetts, where the plant is situated. The International Harvester Company also has found this policy effective. They have no factory in Chicago, but the head of their dozen factories is there. In our case we have only one factory, and it is natural and proper that the sales department head should be at the factory. This contact is so im-

portant that one may look for trouble in a concern which has separate sales and manufacturing headquarters. In the old days our troubles were rich and plentiful; three times as much effort was spent by the sales department in fighting the factory as was spent in fighting competitors. When the two divisions were first brought together, times were lively; but close contact soon developed an understanding of each other's difficulties.

The thirty-two districts are now almost equally divided among these four General Sales Managers, for it is the belief of the company that one man cannot effectively supervise more than eight or nine sales units. Furthermore, the districts are not assigned in solid blocks, but the territory of each General Sales Manager is so arranged that he has districts in different parts of the country. Consequently, for the solution of major problems, the four General Sales Managers have a common knowledge, based on general rather than on sectional conditions.

Another result of centralized control has been the establishment of uniform sales practices. It was only when most of the General Sales Managers had settled down in one central office that we began to get a real insight into the sales practices in vogue and into the relative merits and necessities of such practices. The General Sales Managers were formed into a selling committee, which by informal conferences examined the existing practices and slowly developed a universal standard for the salesmen. Furthermore,

that these new standards might be enforced, effective report forms and inspection methods were evolved.

By keeping themselves in close communication with their District Managers, the General Sales Managers have been able to keep their rules and standards within the practical bounds of enforcibility and to get intelligent coöperation toward their enforcement. By these means that most difficult question of preserving the balance between too much control and too little has been handled in a most practical way. We have found that spending plenty of time in discussions and consultations before rules are made usually pays rich dividends. And we have found that the more thoroughly our sales managers become acquainted with the actual job of selling, the more ground our rules and standards can cover without encroaching upon the broad field of the creative effort of salesmen.

Our District Managers scattered widely over the country in some thirty to forty cities must neither be shackled by rules nor allowed to develop inconsistent sales practices. Similarly, under each of these District Managers, their salesmen must have rules which guide but do not bind. To this end standard practices are established only after thorough investigation and patient explanation; and definite and appropriate limits of deviation are allowed to each District Sales Manager, within which he may move at his discretion, but beyond which he must not go without a General Sales Manager's approval.

As has just been indicated, the management of the sales force is now given to the General Sales Managers and the District Managers; but "merchandising" is the function of the Merchandising Managers. We do not use the word "sales engineering," but one part of sales engineering we call "merchandising." We have a variety of goods, and to get any sort of concentrated attention we divide them into five groups: the jewelry box line; the line for dealers; the holiday goods; the crêpe line; and the consumers' lines.

We came to this plan through the discovery that when our competitors concentrated on some one of our lines, they had an advantage in focusing attention on their goods and were developing and improving them sometimes more than we. As we believed that we were scattering our attention, we divided up our lines and put them under committees of salesmen. The committee chairman gradually became so busy that we had to relieve him of his selling work. Soon he took almost sole responsibility for his part of our line, and we called him a Merchandising Manager. His job is the creation of new lines, the investigation of demand and prices of competing goods, the changes in our own prices, the approval of materials, the designs and packaging of our goods, and the high school education of salesmen. The Merchandising Manager has his attention focused all the time on relatively few goods, and educates the District Managers as well as the sales-

men in the best methods of sales. On his trips, which consume from a quarter to a third of his time, he sits down with the salesmen and sells his line to them.

Then he has a function in regard to our warehousing and the amount of stock we carry at any time. The specific job of warehousing is a factory job, but watching the field and the condition of the market is the Merchandising Manager's job, and he keeps in very close touch with the factory. Upon current production he has to be consulted; he watches conditions and is the adviser of the factory as to the stocks of finished goods in the warehouses. He is between the sales division and the factory; he must make prices and goods conform to the market on the one hand, and to the factory facilities on the other. In the old days we had to make stock in whatever form the sales department told us to make it. The Merchandising Manager now knows the selling field; and he and the factory talk the thing out so as to fit the requirements of both.

The merchandising man watches the field of competitors, and their development and growth. He tries to make the sales department force feel that all they have to do with competition is to report it and then forget it. When a salesman begins to feel that he has to worry about a competitor's business we find it hard to make him think about Dennison business. We have of late years met competition a hundred times more successfully than

when the sales department performed that function.

Furthermore, these five Merchandise Managers have been formed into an advisory committee under the Director of Merchandising. This committee meets once a week, and beside the merchandise men the Purchasing Agent, the Factory Manager, and the Advertising Manager also attend. Here the important suggestions of the Merchandising Manager have a wider consideration than one man alone could possibly give.

Out of this ceaseless effort to find better sales practice which a freely traveling sales management induces, and from the opportunities for comparison of results and exchange of ideas which a high degree of centralization affords, is growing an approach to the sales problem bearing about the same relation to line management which the engineering and the planning departments of the factory bear to production management.

As we have found that our purchasing, sales, and merchandising policies have been most helpful in avoiding the damage caused by the breaking crest of the business cycle, we have in like manner found that our credit policy has been an aid to stability. During boom times orders are free and credits easy; nevertheless, it is then that the Credit Department can get busy and save a good bit of the losses during the depression to come. For when orders begin to crowd capacity, some must be lost on account of

delivery time; the Credit Department should then do its best to save the company from losing a prompt customer in order to serve an uncertain one. In our own case, we use the oversold boom times to improve the average dependability of our accounts by stiffening our standards at the credit desk. New orders are then seldom accepted from customers of poor record.

The results we can show from adopting a policy of rigid credits during a time of expansion are interesting. Scientifically, of course, they cannot be called conclusive since they represent only one experiment, but they bear out very well the *a priori* suppositions. During the depression extending from September, 1914, to August, 1915, the ratio of our losses to sales was 0.0052. During the prosperous year of 1920 the ratio was 0.0005. During the eleven months of depression in 1921, following the careful preparation of the Credit Department, it was 0.0013. It would seem on the surface, therefore, that we had reduced our losses seventy-five per cent by this policy of preparedness.

Because of the difficulty of collecting during depression, there is a temptation to restrict credit during such times. This, we believe, is a mistake if it results in the curtailment of sales when sales are needed most. One must scrutinize credit very carefully at such times, but it pays to take a much bigger chance when one needs the orders than when he does not. We expect, of course, a bigger ratio

of loss in depressions, but as far as possible we want that loss to result from orders taken when they are needed, rather than from orders taken months before, manufactured on overtime pay and in conflict with orders for good-pay customers.

Another aid to business stability is an advertising policy which will sell goods when orders are most needed. New advertising should be prepared by manufacturers during prosperity, so that it will be ready to launch when the critical moment arrives. As a matter of fact, however, most business concerns advertise more during prosperity than when business is poor. This fact is shown by its influence on the price of paper. What is the use of a manufacturer's advertising when he already has all the orders he needs? He should save it up, keep planning, and launch the campaign when he needs the business. Our advertising appropriations are made on a five-year basis, and the manager is supposed to reserve his advertising appropriation in good times and to spend freely in hard times. This is the principle applied in every department of our organization.

Up to this point we have been discussing more particularly the solution of those problems of the business cycle which affect us as the producers of *goods;* but we also have problems of plant and of labor which require the keenest analysis.

As the business cycle advances, and a crisis impends, the heads of a corporation should scrutinize

more and more carefully each project put before them by the engineering staff. They will find that even if the projects are completed as to planning, many of them can be postponed as to execution, with profit to the company and to the community as well. In the boom before 1873, Andrew Carnegie, when asked by Mr. Farquhar why he did not build more furnaces, said that it would be cheaper to wait and buy plants that other men were building. He did not exactly foresee the panic that was to come, but he knew that the steel industry was being expanded at a more rapid pace than the market could assimilate, and it was therefore evident to him that a number of firms were doomed to failure.

It takes time to draw up building plans and discuss them, and after construction is started it takes a long time to finish the buildings and to furnish them with machinery. Hence, the business man cannot afford to wait until his present facilities are overtaxed before he begins to consider expansion. Those who do wait are likely to find their added capacity becoming available at just the time when they ought to be curtailing their output, or after they have already done so. They build fixed assets when they cost the most and finish them when they are needed least.

The only way to avoid this is to study the long-range trend of a business; find out the rate of normal growth, and build for it. In our company we have charted our line of growth for different facilities over

a period of twenty years or more, and on this basis we estimate our future requirements during the cycle as a whole. (See Chart 3.) When building

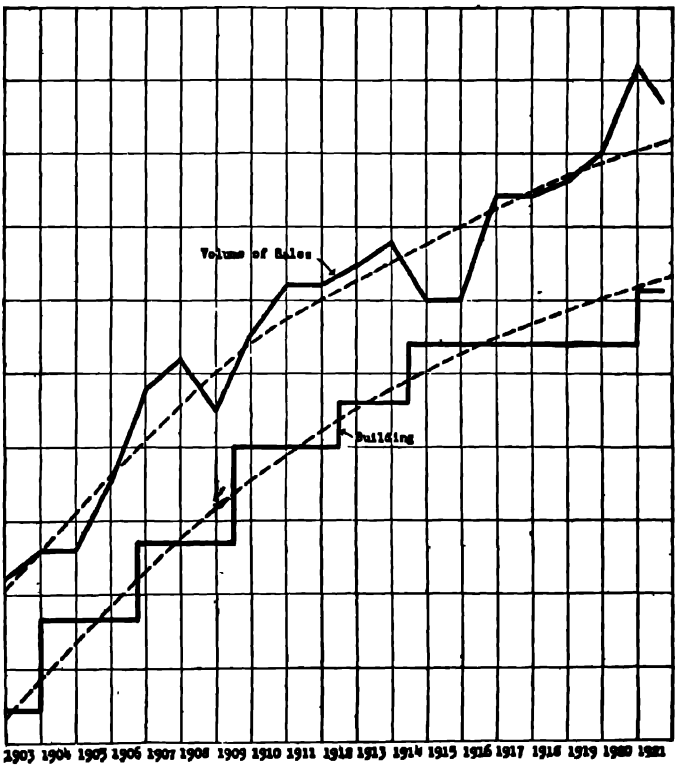


CHART 3. BUILDING PROGRAM RELATED TO COURSE OF SALES

and machinery prices are below the secular trend, we build a little more than up to the normal line, and when they are above, we build less or stop build-

ing entirely. We do not try to build at the exact bottom of the market any more than we try to purchase raw materials at that time. It would be even harder to hit the exact bottom in building than it is in the case of merchandise or raw materials. Of course if we have not the money during depression we cannot build; but the desire to have the money on hand is a strong restraint during booms, and good planning will usually make it possible.

With the coming of a period of depression, regardless of the most careful planning, the majority of corporations are confronted with the unemployment problem. To find the best means to meet this problem is undoubtedly one of the most serious matters before thoughtful business men to-day. One method of alleviation is unemployment insurance.

Industry's contribution to an unemployment relief fund, whether direct or through taxation, may take such a form that the adverse influences it sets up entirely overcome the forces tending to social health and leave a resultant of negative magnitude. It may take the form of an assessment in proportion to pay roll, thus rewarding irregularity of management; it may make its conditions of payment disturbing; and again it may make its payments so small as to irritate, or so large as to kill initiative. Many tests must be brought to bear upon any project for unemployment insurance. The most important single test is this: that the scheme should exert a

balance of influence toward regularizing employment.

Some day we may know enough about the fundamental forces in the field of social engineering to calculate in formulas such influences as these. Just now we must plan as wisely as we can and then experiment; and in the field of unemployment insurance the special need now is a joint experiment by employers, with just enough men in a group to give the experiments variety in application. Small groups have blazed the trail at their own risk. Larger aggregates have been able to follow where the roughest undergrowth has been cut away. Several such groups should get together for the purpose of exploring the possibilities of unemployment insurance through mutual companies, following the mutual fire insurance companies in their insistence on preventive work. Their puzzles will be many, but the experience in several countries having unemployment doles added to our own wide range of experience with mutual companies ought to offer a basis for their answers.

There is one field of possibilities which has been suggested to us by some of the problems which we have been meeting in the handling of our own unemployment relief fund. Upon a fairly large class of goods we found it would be cheaper to manufacture for stock and to store for long periods than to pay unemployment relief for idleness. This class of goods is determined by the ratio of labor to total

cost, by overhead, and by storage charges. Upon such goods, therefore, sound economy and good social practices meet together. If only we could provide the necessary funds, we could in the case of this particular class of goods use employment to cure unemployment. So we are proposing to set aside a part of the present unemployment relief fund as a special depression insurance fund, which will be used under appropriate rules to finance making for stock more of certain staples than we could make without the help of this fund.

It is this idea of depression insurance, as yet barely more than a suggestion, which should be given thought by many groups of corporations which may begin to discuss mutual action in mitigation of unemployment.

The Dennison Manufacturing Company has also begun the task of working out a policy for the relief of unemployment by the company. The impossibility of determining now the proper fixed charge or ratio of charge to be made against unemployment and the advisability of budgeting charges capable of so elastic an application have led to the creation of an Unemployment Fund, set aside by the Directors out of the profits, and accumulated over a period of approximately five years. It is necessary to bear in mind at the start the status of this fund, both because the status represents the adjustment to a new industrial concept, and because the reaction to the program which this fund involves will be deter-

mined in no small degree by the conception of it which prevails.

In the first place, it is not charity; it has a business basis and must rest upon considerations of mutual advantage, with mutual self-respect. This business basis it must find in securing and retaining better employees; in better work on the part of the employees, due to their release from the risk of periodic total loss of income through unemployment; and in a steadier working force, due to the abrogation of the risk that the employees will find permanent work elsewhere during the times when they are unemployed.

In the second place, our establishment of an Unemployment Fund is not a guaranty either of permanence of employment or of maintenance of the regular wage rate. Lacking knowledge on the subject, we provide a fund, setting emphasis on its wise use, and stating plainly that we do not guarantee its renewal.

After the Directors had established the Fund, the matter of working out provisions for its administration was placed in the hands of a special committee, of which two members were representatives of the employees from the General Works Committee, and two from the management. This committee in drafting the rules governing the use of the fund gave to the term "unemployment" a broad interpretation, not regarding total or even partial idleness as necessary in order to establish unemployment within the

intent of the Fund, but regarding any loss involved by the inability of a willing worker to continue employment at his normal and qualified duties, while being retained on the books of the company, as creating a field of unemployment loss.

Accordingly, the program the unemployment committee has mapped out provides at the start that, in the event of unemployment shortage in any part of the plant, the actual laying-off of any employees shall be avoided whenever possible by temporarily transferring those for whom there is no work to other parts of the plant where there is work. If this results in a materially lowered wage rate, it is recognized as constituting a basis for a claim upon the Unemployment Fund. Therefore, if any unemployment exists, there may be both a class in which there is a complete lack of work, and a class in which the unemployment claim is really a claim for loss by reason of diminished returns. Employees, regardless of length of service, are paid for all unemployment of one-half day at a time or over. No lay-off or transfer of less than half a day at one time is considered unemployment.

As has previously been stated, the fund is not a guaranty of the regular wage rate. It is felt that at least in the first experiments the burden of unemployment should be jointly shared by the employer and employee, and the fund used as far as possible in relieving the worst distress from unemployment. Furthermore, there is a certain healthy

effect upon the employee in thus knowing that in unemployment relief, as in fire insurance, there is an appreciable factor of coinsurance; for this will remove any possibility of the fund tending to motivate against a feeling of responsibility on the part of the employee as to his own financial security.

Accordingly, whenever there is actual unemployment, the Fund is set in operation for the relief of distress in the following manner: Employees who are temporarily laid off receive eighty per cent of their regular wages if they have dependents, and sixty per cent if they have no dependents. Both classes of employees, when they secure temporary work outside, are entitled to an amount equal to ten per cent of their outside earnings plus ninety per cent of their earnings with the Dennison Company, the Unemployment Fund being used to make up the difference between this amount and what they receive outside. Employees who are transferred inside to other work are paid their full wages if they are time workers and ninety per cent of their six weeks' average if they are piece workers. Whatever they are worth on their new job is charged to operating expenses, and the rest is made up out of the Unemployment Fund. At any time after six days' payments have been made the Unemployment Fund Committee may stop making payments to any employees who, in its opinion, are not making proper efforts to secure outside work.

Thus, in all cases where the employee's earning

power is temporarily reduced because of lack of employment, whether the employee is rendered idle or secures temporary employment in some other work inside or outside the factory, he is protected against any severe hardship.

Moreover, the company retains the right, if it deems best, to discharge employees; but discharge because of shortage of work—besides being regarded as a move to be resorted to only when the shortage cannot be considered temporary—is not permitted to create an unemployment problem for which there has been no warning. An employee cannot be summarily projected because of lack of employment outside all safeguards which the Dennison system has created, without receiving two weeks' notice or its pay equivalent, thus assuring the employee two weeks to place himself to better advantage.

Although a clearly defined working principle has been mapped out in the entire field of compensation, all practices are but tentative hypotheses which are put into practice merely to feel out, step by step, the true principles that control this new field. The relief of unemployment will become one of the principal incentives to the prevention of unemployment.

Unemployment insurance and an unemployment fund are remedies against the damages which periods of depression bring to labor; but another remedy for unemployment is found in a labor force which is both versatile and loyal. At no time does the advantage of a versatile labor force show up so

strongly as during depression, when it is necessary to carry absolutely no superfluous help and yet to have enough to insure prompt delivery. Employees who can be shifted from one department to another without loss of efficiency are decidedly valuable. To train employees to do different classes of work, and to keep careful records showing who they are, is therefore more than ever necessary when business is slack. If additions and improvements are made during periods of depression, it is often desirable to transfer manufacturing people to construction work at this time. Rearrangements can be carried out during depression when work is slack. Stores can be put in order and other jobs of the kind can be done. Producing machinery can be repaired during business slackness when the machinery is idle, for during prosperity repairs often mean a loss of valuable time.

Finally, when a considerable number of men and women are associated together for any purpose, it is always necessary that rules and arrangements be devised so that the efforts of each of the individuals may not be at random or in conflict, but directed toward the common goal. These rules and arrangements constitute the government of that particular group. Whatever may have been true in the past, we believe that in the years to come the best form of government of an industrial group will provide increasingly effective means by which all members of the group may express their intelligent consent

or dissent to the rules which govern them. Only under such conditions can men and women give their best to the common goal and develop the ability to make that best progressively better.

The Works Committee plan is not only the greatest step that we could take to-day toward this goal, but it goes still further: it provides a regularly established means through which every member of the organization can help in the development of constructive policies to improve the efficiency of the whole organization and to increase the opportunities for happiness of each of its members.

The Works Committee plan, by providing for the adjustment of grievances, has made them rare; by providing a committee of representatives it has made possible government with the consent of the governed; and by providing joint committees for a thorough and thoughtful investigation of specific subjects, it has secured to us the opportunity to create continuously those new plans for efficiency and contentment which will make sure our steady progress in the future. Though the details of our Works Committee plan are important and worthy of careful study, more important is the fact that the conception of the plan and the development of all its details were the work of the committee of employee representatives. The management can claim no share of the credit; it could not help approving the thorough and well balanced work of the committee.

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