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A REVIEW

BY WESLEY C. MITCHELL

I. THE MAZE OF ECONOMIC CHANGES AND A CLUE

The preceding chapters form a moving picture of the economic changes now going on in the United States. They show scenes from real life registered from various angles by a group of skilled observers. Starting with a survey of the kinds and quantities of goods American families are consuming, the scene shifts to the work people are doing in factories and mines, on construction jobs, railways, ships and farms. Another shift focuses attention upon the activities of labor organizations and of management. Then come the impersonal records of price fluctuations, capital accumulations, banking and international dealings. The close links into the beginning—it shows the inflow of incomes which enable American families to sustain their varied consumption.

This record presents striking contrasts. Consumption as a whole has increased, but the consumption of certain great staples has shrunk. While trade at large has flourished, certain branches have languished—notably ship building, the railway equipment industry, and agriculture; in less measure the textile, coal and shoe trades. Pay-roll disbursements of factories have expanded, but manufacturing employment has diminished. Business profits have been large, but so also have been the number of bankruptcies. Great quantities of gold have flowed into the country, but wholesale prices have sagged much of the time. Income as a whole has grown larger, but important sections of the country have made little gain, and important occupations have suffered loss.

Impressionistic writers often disregard such diversities of fortune. One can paint a glowing picture of American prosperity which emphasizes the triumphs of mass production in automatic factories, the success of large-scale farming with power machinery, the rapid spread of chain stores, the co-operation of labor unions in enlarging output, the economy of high wages, our new position in international finance. Or one can paint a picture of average and subaverage performance by ordinary men struggling with difficult circumstances and ending in discouragement or failure. Both pictures may be true to life, so far as they go. Both are easy to make—one has only to select from the abundant materials those which harmonize with the chosen theme. Both are easy to understand because they show no incompatible elements. But neither picture satisfies an observer who uses his eyes.

A just picture is neither easy to make nor easy to understand after it has been made. Trustworthy general impressions must be based upon study of what is happening in different geographical sections, in different industries, business enterprises, labor organizations, markets, professional societies, trade associations, and Government bureaus. No individual is equipped to gather and to analyze all of the evidence which should be canvassed. For that there is needed the critical skill of engineers, business executives, public officials, bankers, economists, statisticians, labor specialists and agricultural experts. Even in his own department, each of these men finds diverse developments. Often there is a striking contrast between average current performance and exceptional achievements which are important more for what they promise in the future than for what they represent in the present. At times, national totals or averages can be drawn up to summarize the general situation as seen from some angle; but the very estimators who present such figures emphasize the differences hidden in the general results. And when the contributions of numerous specialists have been assembled in one volume, there still remains the task of assimilating all the elements—of understanding the picture as a whole.¹

The best clue to the maze of recent economic changes is supplied by economic history. What has been happening in the United States is the latest phase of cumulative processes which have dominated western life since the Industrial Revolution got under way. Powerful as these processes are, they were appreciably influenced by the sudden outbreak of the war and by the sudden return of peace. By changing the conditions amidst which the old influences worked, these world shocks contributed to strange results.

II. THE CONTINUING FORCES—SCIENCE AND ECONOMIC CHANGE

The nineteenth century brought an unprecedented increase in the number of Europeans, an unprecedented spread of Europeans over the

¹ Not that all factors which have affected the economic fortunes of the United States in recent years are adequately presented in the survey. We have had to shape our inquiries according to our means. Little is said about the enormous advantages which this country, in sharp contrast to Europe, enjoys from the absence of internal tariff barriers, or about the mixed effects of the tariff upon imports. The influence of federal, state and local taxation is mentioned here and there; but it is not systematically discussed. Previous inquiries had shown how difficult it would be to get conclusive data concerning the economic reactions of the Eighteenth Amendment; with the limited time and money at our disposal it seemed futile to scratch the skin of that controverted issue. Immigration restriction is dealt with incidentally; it merits far closer analysis than we have been able to provide. But even with these omissions and others of less moment, we have a rather bewildering array of factors to set in order.

earth, and marked changes in their relation to other peoples.² These multiplying numbers, moreover, gradually attained a higher level of material comfort than the mass of their progenitors had ever enjoyed.

These great changes in the fortunes of mankind were made possible by the application of science to the work of producing, transporting, manufacturing, and distributing goods. Increasingly wide and exact knowledge of natural processes underlay the invention of the steam engine, the locomotive, the steamship; the smelting of iron with coal; the improvements in mining and metallurgy; the development of the telegraph, ocean cable, telephone, dynamo, transmission line, radio; the industrial applications of chemistry and biology, the increasing precision of work, the system of interchangeable parts, the progress toward automatic mechanisms, the linking of machines into continuous processes for mass production; the rise of the oil and rubber industries; the perfecting of the internal combustion engine, the automobile and the airplane.

In the course of the century, a technique of material progress was developed. Science spread from its ancient stronghold of mathematics into a systematic study of the most varied phenomena, including the phenomena of living processes and consciousness. The industrial application of scientific discoveries was secured by the rise and differentiation of the engineering professions. From the parent stock of military engineers there developed in turn civil engineers, mechanical, mining, marine, sanitary, gas, chemical, electrical, efficiency and production engineers—each group trained in the fundamental sciences and experienced in industrial practice. Business men were prompt to see the profit which could be drawn from the use of the new methods. Indeed, the Industrial Revolution had been preceded by a Commercial Revolution.

² Prof. Walter F. Willcox has kindly supplied the following estimates of the population of the world in millions of persons. He thinks that his figure for the number of Europeans outside of Europe in 1900 is probably too low.

	1800	1850	1900	1925
Population of European origin:				
In Europe.....	187	266	401	475
Outside of Europe.....	16	50	100	164
Total.....	203	316	501	639
Population of non-European origin.....	609	777	994	1,107
Total world population.....	813	1,093	1,495	1,746
Rates of increase from 1800 to 1925:				
Population of European origin.....		215 per cent		
Population of non-European origin.....		82 per cent		
Total world population.....		115 per cent		

Encouraged by the gradual expansion of demand, business leaders had been reorganizing methods of producing, transporting and distributing goods to secure greater efficiency. But this quiet process was enormously stimulated by the "great inventions" and the numberless inventions which followed. For these technical improvements not only increased efficiency more than mere reorganization of old processes could do; they also widened the markets at surprising speed and thus created ever larger opportunities for the business organizer to seize.

Not only did the new technique enable men to produce more from their known resources, it also brought distant resources within reach and discovered new treasures which were turned to human use. Vast new granaries were developed in the Mississippi Valley, Argentina and Canada; vast new ranges for cattle and sheep stretched from Texas to Montana and over much of Argentina and Australia. The textile mills of England were fed cotton from the South Atlantic and Gulf States, Egypt and India; silk from China and Japan; wool from Argentina and Australia; coarser fibers from Mexico and the Philippines. European soils were replenished from Chilean nitrates. Iron ranges of great extent were found in North America; copper came from Michigan, Montana, Arizona, Utah, Chile and Peru; gold flowed from Brazil, California, Australia, Alaska and South Africa; petroleum pools were found dotted over the globe. Most important of all for the new technique, coal deposits, surpassing those of England in extent, were developed in Europe and America. Science enabled the generations which applied it to tap energy from the sun, accumulated through millions of years. As research, engineering and business enterprise were developed, so also was prospecting. The world was combed over as never before by men with piercing eyes and long plans.

By no means all the increase in efficiency took the form of a net gain in current livelihood. To use the technique founded on science, men had to build machines, factories, railways, roads, warehouses and sewers. In developing new resources, they had to dig mines; to break the prairies and fence in farms; to make homes in strange habitats. And this work of re-equipping themselves for making consumers' goods was never done. Every discovery put to use on a commercial scale meant a new equipment job, often of great extent. But after all this work on the means of production was done, there remained an ever larger flow of the things men eat and wear, house and amuse themselves with.

The net gain in ability to provide for their desires brought men the possibility of raising their standard of consumption, of reducing their hours of work, of giving their children more education, of increasing their numbers. They took a slice of each of these goods, rather than all of one. They worked somewhat less hard as the decades went by; they raised their standards of consumption appreciably; they established

compulsory education and reduced illiteracy; they added to the population. Any one of these changes might have been made on a larger scale had not men taken their gains in various forms.

The pace at which the sciences grow, and the pace at which their discoveries are applied to the work of the world, keep changing. In any given field of scientific discovery or commercial application, a period of revolutionary changes is followed by rapid expansion as the new discovery is fitted into the existing body of knowledge or the existing structure of industry; then expansion tends to slow down. One after another, many of our leading industries have gone through this cycle of changes since 1800. In any given decade in any given country, some parts of its economic mechanism were being made over, some parts were growing steadily, some parts were changing little. Hence the growth of industry as a whole has been less unsteady than the growth of its component parts. The pace has not been uniform, however; even from the national viewpoint there have been periods of more rapid and less rapid advance.

Population growth also has its changes of pace. The nations which lead in science and industry have been increasing their numbers more slowly of late than in the earlier part of the nineteenth century. This change is explained by experts as so many modern changes are explained—it is attributed in large part to the practical application of scientific knowledge. From a critical study of European evidence, Sir William Beveridge concludes: "The practice of birth control, that is to say, the deliberate prevention of fertilization, suddenly increased about 1880, not because there was then any change of economic conditions making restriction of families suddenly more desirable than before, but because the means of birth control were perfected and the knowledge of them was spread, both by those interested in their sale and by disinterested propagandists."³ That may not be all of the story, but, whatever its causes, the reduction of the birth rate meant that as men acquired more knowledge they absorbed a smaller share of the gains from applied science in propagating their kind, and thereby increased the possibility of shortening hours and of raising the standard of living.

The whole process of gaining new knowledge and putting it to use has had to make headway against other human interests—particularly man's interest in getting the better of his fellowmen. Business friction, class struggles, and national wars check science and the peaceful arts; they impoverish the participants and usually injure the bystanders as well.

³ "The Fall of Fertility among European Races," *Economica*, March, 1925, No. 13, p. 20.

III. THE WAR AND ECONOMIC CHANGES

Of the checks which economic progress has suffered since the Industrial Revolution began, the gravest was inflicted by the war of 1914-1918. For all the great nations which lead in science and industry were directly involved in this desperate struggle, and all the lesser nations on the same cultural plane were either belligerents or harassed neighbors of the belligerents. Never had warring powers mobilized their brains and brawn, their industrial equipment, and their financial resources so skillfully to harm the persons and property of their enemies. Of the damages inflicted and suffered, we need here note only such items as help to account for the postwar changes in American conditions and practices.

The elaborate equipment for attack and defense demanded by up-to-date standards of military efficiency meant that every soldier at the front had to be served by several workers behind the lines. In desperate haste, each belligerent organized its industry and trade to produce a maximum output of military supplies and the indispensable minimum of goods for civilians. A large part of the most efficient workers had to be withdrawn from production and others hurriedly trained to take their places. Old factories had to be remodeled for war uses and new plants built that would serve no peace-time purpose. Governments had to intervene on a grand scale in operations where private initiative had been deemed more effective. Long-run advantages and deliberate planning had to be sacrificed to immediate needs. Despite prodigies of energy on the part of many leaders and devotion on the part of the masses, the industrial changes of the war were attended by enormous wastes, in addition to the wastes which the reorganization was intended to effect.

In finance the war brought even wilder confusion than in industry. Monetary and banking policies were dictated, not by the economic interests of peoples, but by the pressure of circumstances. Specie payments were suspended in several countries almost immediately. Wholesale prices, wages, and costs of living, in terms of the irredeemable paper currencies, underwent fantastic fluctuations, and made necessary awkward schemes of government control. Millions of people had much of their property quietly confiscated through no fault of their own, and thousands grew suddenly rich not by virtue of service. Taxes mounted to heights which seemed unbearable, but public debts swelled faster still. No rule of rational finance could be followed when it ran counter to the plea of necessity.

The latest estimates indicate that "the war carried off in round numbers thirteen million mobilized men." The war is charged further with a large share of responsibility for the ten million deaths during the influenza epidemic of 1918, and the scarcely less destructive epidemics

which followed in Eastern Europe. Census figures show that the total population of Europe declined more than ten millions between 1910 and 1920. The loss from 1917 to 1920 must have been considerably greater.⁴

Thus the war left Europe with fewer people; these people were less well-nourished, less able-bodied, less self-reliant; their industrial equipment was in poor physical condition and in good part useless for peacetime production; their soils were depleted from the lack of fertilizers; they had sacrificed a large part of their farm animals; they had laid waste considerable stretches of land and ruined many towns. When peace returned, they faced the task of demobilizing their soldiers and war workers, releasing their government controls, reorganizing their industrial forces, and restoring their capital equipment while prices were still fluctuating violently, and while political prospects, domestic and international, were most uncertain. Economic welfare in Europe had received a setback indeed.

The economic position of the United States improved greatly in comparison with Europe's during the war. But that was more because European losses were staggering than because American gains were spectacular.

Business in this country recovered from depression in the second half of 1915 with remarkable rapidity, thanks largely to war orders. Then we had a year of intense business prosperity in 1916, followed in 1917-18 by the hectic economic activity which prevailed among all the belligerents. If taxes were heavy, current profits were very large. Nor were the gains confined to the profit-making classes. Wage rates may not have kept even pace with the cost of living, but employment was full and there was a widespread reduction in standard working time between 1914 and 1920, which Dr. Leo Wolman estimates at five hours a week.

Listing the deductions is a more complicated matter. There was an uncommonly large share of haste and waste, as well as of profits, in war-contract work during 1915 and 1916. Though we were not forced to suspend specie payments, our whole system of prices suffered convulsions almost matching those of the Civil War. In 1917 we sought to mobilize all our economic resources in a hurry for military ends, and had to demobilize the war workers, as well as the army, in 1919. Our railways declined in efficiency. We poured millions into war plants and ships that had to be scrapped after the armistice. We took about 5,000,000 of our best producers out of civilian life. We lost 116,000 soldiers and sailors, and shared in the influenza epidemic of 1918. These costs were real, and must be considered in any accounting of the economic effects

⁴ Walter F. Willcox, "Military Losses in the World War," *Journal of the American Statistical Association*, September, 1928, vol. XXIII, pp. 304-5; and "Population and the World War," *ibid.*, June, 1923, vol. XVIII, pp. 699-712.

of the war just as much as the profits which the war brought to American business enterprises.

Even if items which cannot be expressed adequately in dollars were set aside, it would be exceedingly difficult to strike a balance between the war gains and the war losses. That task is not attempted here. But it is proper to note the fluctuations in the country's "real" income during the war, that is, income in dollars of constant purchasing power. These figures, given in Chapter XII, are estimates based on the critical study of a vast mass of materials; they have been made and revised with scrupulous care; they are probably the most reliable, as well as the most inclusive, index of changes in the economic position of the average family. In the last full year before the war, a year which began with brisk trade but ended in dullness, the per-capita income of Americans, taken at the retail prices of 1925, was \$621. (See Chapter XII, Table 1, column 6.) Starting with this figure as 100, per-capita income shrank to 97 in 1914, rose to 99 in 1915, to 106 in 1916, remained constant at that level in 1917, and then declined to 105 in 1918. On this showing, we were far from impoverished during the war; but our economic progress was not remarkably rapid.⁵

Nor can we close the reckoning of the war's influence upon real income with 1918, either in the United States or in other countries. The readjustment of economic activities to peace is one of the costs of war. And that readjustment is more than a matter of beating swords into ploughshares. In proportion as the belligerent nations had succeeded in mobilizing all their economic resources for war, not only their governments, but also their business enterprises and individual citizens had to reorganize their plans after the armistice. The business mistakes made during this period of confusion are largely chargeable to the confusion itself. Other countries found the process of readjusting even more

⁵ The showing is less favorable if we take the everyday conception of income as including only sums received in money. On this basis, the per capita figures, expressed in dollars of 1925 purchasing power, run as follows:

	Per-capita income	Relative income
1913.....	\$551	100
1914.....	530	96
1915.....	543	99
1916.....	582	106
1917.....	573	104
1918.....	551	100

The chief items omitted in these figures and included in those underlying the text discussion are farm products used by the families which produce them, the rental value of houses owned by their occupiers, and interest on the value of semidurable consumers' commodities in the possession of families.

difficult than did the United States. All our allies made matters worse, as did we, by committing economic blunders in 1919 for which they paid in 1921. What happened is sketched briefly in the next section. But here we should note that income in the United States sank in the early years of peace. Indeed, average real income per capita in the United States during the eight years of war and postwar readjustments, 1914 to 1921, was less than the per capita income of 1913. That is not a record of prosperity.

IV. PEACE AND THE ECONOMIC CONVULSIONS OF 1919-1921

Readily as they had accepted the economic regulations and restrictions imposed during the war, the American people threw off the yoke eagerly after the armistice. The "dollar-a-year" men returned to their offices; the munitions plants closed and their workers dispersed; the soldiers in training camps and in France were sent back to their homes as rapidly as might be. Government price-fixing ended, and everyone was at liberty to charge what he could get for his goods. The rationing of raw materials, the granting of transportation "priorities," the conservation program, the Federal regulation of imports and exports, and the Government control over shipping stopped at various dates. When the Transportation Act of February, 1920, provided for returning the railroads to private control, practically nothing was left of the war-time mobilization.

It was not "business as usual," however, to which Americans returned in 1919, but business as dominated by postwar conditions. Early in the year there was grave uncertainty regarding the trend of affairs. Wholesale prices declined from December to February or March; there was much loose talk about the necessity of "liquidating labor;" the prevailing business attitude was one of "watchful waiting." But, early in the spring, signs of eager demand for consumers' goods began to appear. In April, Federal-Reserve-agents-reported-that "the-business-community has given up the thought that it may profitably await a further considerable reduction in prices . . ." ⁶ In July, the Bureau of Labor Statistics wholesale price index (as then constituted) jumped from 207 to 219, and business boomed.

The extraordinary demand for goods, which produced this sudden transition from hesitation to feverish activity, came partly from foreign countries. The underfed European populations bid eagerly for our foodstuffs; also they were short of raw materials for their mills. Aided by American credits, governmental and private, they could pay for what they needed. So the physical volume of exports and their prices rose together. The value of shipments to Europe reached nearly \$5,200,000,000 in 1919, 25 per cent higher than the preceding record, and double the

⁶ *Federal Reserve Bulletin*, May, 1919.

money value in any year since then. The removal of restrictions upon foreign trade enabled our other customers also to buy in proportion to their respective needs. The increase in the value of total exports over 1918 reached \$1,771,000,000.

Domestic demands were scarcely less keen. Economies in consumption, partly voluntary and partly forced, had been practiced widely in 1917-18. Hence there was need for buying more than the customary quantities of clothing, household furnishings and other semidurable comforts. Ordinary building had been discouraged during the war as a nonessential industry, and there was pressing call for more houses. Crops in 1918 had been but moderately good; stocks had been kept low; numerous branches of civilian production had been purposely restricted. High prices were asked for the current supply of finished commodities soon proved inadequate. But for a time customers were willing to pay almost any price for prompt deliveries. Employment had been full for three years, soldiers commonly had substantial sums due them when mustered out, new jobs were readily had at high money wages, everyone seemed tired of economizing.

Under these circumstances, 1919 developed into a great trading year. Interest rates remained fairly low until late autumn; the Treasury was floating its great Victory loans that summer and wanted easy money to facilitate subscriptions. Orders for goods from merchants, contractors and manufacturers promised a continuation of good times. A run-away market developed on the New York Stock Exchange for industrials. Paper profits, present and prospective, seemed very high.

But 1919 was a poor year from the point of view of production. The harvests, indeed, turned out well; there was a large yield of wheat and there were fair crops of corn and cotton. It was in mining and industry that the record was bad. The following collection of indexes of production, in Table 1, made on unlike plans by different investigators, all agree in showing that output in physical terms was decidedly less in 1919 than in the preceding years. By strenuous effort we had kept production at a high level in 1917 and 1918, despite the withdrawal of more than a million men from our mines and factories. In the first year of peace, when many of these men got back to work, efficiency declined. These indexes of physical production confirm and are confirmed by the estimates of per capita income in dollars of constant purchasing power. The figure for 1918 had been \$651. For 1919 it was \$611.

More insight into the nature of the industrial inefficiency of 1919 is provided by the indexes from the censuses of manufactures presented in Chapter II. The most significant figures for the present purpose relate to productivity per wage earner. Of course one expects average productivity per worker to rise gradually in a country which keeps abreast of technical progress. Such an advance we find from 1899 to 1909—the

index of productivity per worker in this period runs 100 in 1899, 104 in 1904, and 110 in 1909. We may explain the relapse to 108 in 1914 by the business depression of that year. But the further decline to 104 in the boom year 1919 must mean that both management and labor were deplorably lax. Probably it means also that, during the war, we had neglected our industrial equipment for civilian production and made but few improvements in method.

TABLE 1.—INDEXES OF PHYSICAL PRODUCTION IN THE UNITED STATES BY YEARS: 1913-1919

Year	Index of Production in Basic Industries, Federal Reserve Board revised. ^a 1919 = 100	Index of Industrial Production, Standard Statistical Company, ^b "Normal" = 100	Harvard Indexes of Physical Volume of Production "Normal" = 100 ^c		
			Mining	Manu- facture	Agricul- ture
1913.....	96	106	102	102	94
1914.....	86	92	95	91	106
1915.....	96	100	99	98	110
1916.....	114	116	108	112	96
1917.....	116	114	112	109	101
1918.....	110	105	110	104	100
1919.....	100	95	95	98	101

^a Includes 4 types of metal production, 2 types of textiles, 3 types of fuel, 4 types of animal and 2 of vegetable foods, lumber, cement, leather, newsprint and 3 types of tobacco products—22 series in all. See *Federal Reserve Bulletin*, May, 1924, p. 422.

^b Includes 39 series of production or consumption data—a somewhat more inclusive list than the Federal Reserve Board's "basic industries." "Secular trend is eliminated and correction made for normal seasonal variation." See *Statistical Bulletin* of the Standard Statistical Company, April 21, 1924, p. 28.

^c The indexes, originally made by E. E. Day, in their latest form. See W. Floyd Maxwell, "The Physical Volume of Production in the United States," *Review of Economic Statistics*, July, 1927, p. 143.

The business boom of 1919 developed with extraordinary quickness, and in rather extreme form, the internal stresses characteristic of such episodes. A rapid expansion of commercial loans reduced the reserve ratios of the Federal Reserve banks below 50 per cent in October. On November 3, the New York bank raised its rediscount rate. Stock prices tumbled promptly. But as usually happens in booms, commercial activity continued to expand for some months after the stock-market collapse. The further expansion of commitments added to the accumulating tension. Though the other Reserve banks followed the example of New York in raising their rediscount rates, the Reserve ratio continued to sag. By February, 1920, the figure was below 43 per cent, and there it remained for several months of growing uneasiness. Meanwhile, prices at wholesale climbed unsteadily to 247 in May—an advance of 54 points on the prewar base since the dizzy rise had started in March of the

preceding year. Then came the turn. Slowly at first, soon rapidly, prices gave way. In half the time it had taken prices to rise 54 points, they dropped 68 points.⁷

At the close of the Civil War, wholesale prices had fallen from 216 in January, 1865, to 158 in July—a drop of over 25 per cent in six months. That fall produced no grave crisis. The business community had expected the greenback dollar to appreciate in gold when the Confederacy collapsed. Grant's successes against Lee and Sherman's march to the sea gave timely warning of what was coming, both at the front and behind the lines. Because business men prepared for the worst, keeping commitments and inventories at a minimum, the country passed through this sudden fall of prices with extraordinary success.

The corresponding drop of prices in 1920-21 caught the business community in a different frame of mind and in a different technical position. Perhaps if the fall had come soon after the armistice, when many expected it and almost everyone was cautious, it would have passed off much as in 1865. But prices had risen in 1919, the volume of trade had expanded, profits had been high, the preliminary warnings of the Federal Reserve banks had been ineffectual, and, when the turn came, many business enterprises were caught with heavy inventories and heavy future commitments. So the fall of prices, which started gently enough, was accentuated by the efforts of embarrassed houses to turn commodities into cash. Every price decline made the financial position of overexpanded enterprises worse, reinforced the fears of insolvency and the pressure for liquidating indebtedness, thus increased the pressure to realize upon stocks of goods, and so forced prices lower still.

Three favorable factors prevented this crisis from degenerating into a panic. Though European demand for our goods declined somewhat from the high level of 1919, the demand from other countries scored a more than compensating increase. The total value of our exports exceeded \$8,228,000,000 in 1920—which still stands as the record figure. Second, retail demand from domestic consumers remained active to the end of the year. The Federal Trade Commission estimates total retail sales as nearly 35 billion dollars in 1919 and over 38 billions in 1920.⁹ Third, and probably most important, the Federal Reserve System, with its organization of banking reserves, enabled our banks to meet the

⁷ Here the latest form of the Bureau of Labor Statistics index on the 1913 base is used. See *Index Numbers of Wholesale Prices on Prewar Base*, U. S. Department of Labor, 1928, pp. 7, 8.

⁸ See Wesley C. Mitchell, *Gold Prices and Wages under the Greenback Standard*, Berkeley, Calif., 1908, p. 23. The index used is the unweighted median of the relative prices of 92 commodities.

⁹ See *National Wealth and Income*, Senate Doc., No. 126, 69th Cong., 1st Sess., Washington, 1926, pp. 306-313.

emergency needs of business far more effectively than in previous crises. There was no such suspension of payments by banks, no such refusal of credit to solvent enterprises, as in 1893 and 1907.

The net resultant of the complex of forces was a drastic financial liquidation, which presently produced, and was then aggravated by, a severe industrial depression. Business enterprises, fearing for their solvency, canceled orders freely; enterprises in a less precarious condition bought hand-to-mouth on the falling markets; concerns which had been making up stocks of raw materials reduced their working forces instead of buying new stocks. Discharges mounted month by month, until the number of unemployed in 1921 alarmed the nation.¹⁰ In consequence, retail buying fell off—by 7.6 billion dollars, according to the Federal Trade Commission. Thus one of the timbers which had shored up business in 1920 gave way under the prolongation of the strain. A second support failed; other countries were suffering misfortunes like our own, so that our exports dropped 3.7 billion dollars, 45 per cent, below the preceding year.

Amidst these unfavorable circumstances, business losses swelled to prodigious figures. The rise of prices from the middle of 1915 to May, 1920, had rendered money-making overeasy. Speculation in commodities had been encouraged; the penalties for inefficient operation and risky financing had been relaxed. The numbers and the liabilities of bankruptcies had declined to half their prewar levels. Thus, when prices began their precipitous fall, the American business community contained a dangerously large proportion of weak enterprises. Despite the extraordinary efforts of bankers, supported by the Federal Reserve System, to prevent avoidable failures, business mortalities trebled between 1919

¹⁰ President Harding called a Conference on Unemployment, of which Mr. Hoover was chairman. For a committee of the conference, the National Bureau of Economic Research made a fact-finding study, published in 1923 under the title *Business Cycles and Unemployment*. In this report, the best estimates we could make of the extent of unemployment in 1921 were summarized thus:

"There seems good ground for believing that, in actual diminution of employment, the depression of 1921 was almost twice as acute as that of 1908 and at least twice as acute as that of 1914-15." William A. Berridge (p. 59).

"The figures show that the depression brought about a reduction in the number employed in every industry except the hand trades, and the trivial increase in that one field is scarcely sufficient to keep pace with the growth of population. The reduction in all industries amounted to about 4,000,000 workers, or nearly one-seventh of all persons employed at the crest of the 1920 boom." Willford I. King (p. 86).

The new estimate, given in the chapter on labor in the present report, states the "average minimum volume of unemployment" at 4,225,000 in 1921 as compared with 1,305,000 in 1920. These figures are not inconsistent with the earlier ones; for they give averages for years on a minimum basis, whereas King used quarterly data and attempted to reach a maximum figure.

and 1921. Liabilities increased more than fivefold.¹¹ What happened to the bulk of enterprises is perhaps best indicated by the reports of corporations to the Internal Revenue Office, though even these official returns must be accepted with reservations. As the following table shows, more than half of the corporations reported that they lost money

TABLE 2.—CORPORATE INCOME TAX RETURNS^a

Year	Thousands of corporations reporting	Percentage reporting		Total net income of corporations reporting net incomes (millions of dollars)	Total deficit of corporations reporting no net income (millions of dollars)	Net income of all reporting corporations (millions of dollars)
		Net income	No net income			
	(1)	(2)	(3)	(4)	(5)	(6)
1916.....	341	61	39	8,766	657	8,109
1917.....	351	66	34	10,730	630	10,100
1918.....	318	64	36	8,362	690	7,672
1919.....	320	65	35	9,411	996	8,415
1920.....	346	59	41	7,903	2,029	5,874
1921.....	356	48	52	4,336	3,878	458
1922.....	383	56	44	6,964	2,194	4,770
1923.....	399	58	42	8,322	2,014	6,308
1924.....	417	57	43	7,587	2,224	5,363
1925.....	430	59	41	9,584	1,963	7,621
1926.....	455	57	43	9,673	2,169	7,504
1927 ^b	453	55	45	8,068	2,311	5,757

^a From *Statistical Abstract of the United States*, 1926, pp. 190, 191, and *Statistics of Income*, Treasury Department, 1925-1927.

^b Preliminary report, based on returns filed to August 31, 1928.

in 1921. If we subtract the deficits of the losers from the net incomes of the concerns which admitted making money, we find that the balance of profits falls from eight billions of dollars in 1919 to less than half a billion in 1921. Probably that statement exaggerates the drop in net corporate income. But it is safe to say that, in the course of the drastic readjustment, a considerable fraction of the accumulated war-time profits was swallowed up.¹²

¹¹ Dun's figures, as given by the *Statistical Abstract*, are as follows:

	Number of commercial failures	Aggregate liabilities in millions of dollars	Average liabilities
1919.....	6,451	113	\$17,561
1920.....	8,881	295	33,230
1921.....	19,652	627	31,926

¹² Mr. George O. May, one of the directors of the National Bureau who has intimate knowledge of such matters, points out some of the uncertainties which becloud these figures.

During the period of the excess-profits tax, profits were affected by several unusual factors. For example, war contracts were let in many cases on highly profitable terms, with the thought in mind that a major fraction of the profits would be recouped

TABLE 3.—A CONSPECTUS OF BUSINESS CONDITIONS IN 17 COUNTRIES, 1919-1921

Country	1919	1920	1921
United States.....	Revival, prosperity.	Prosperity, recession, depression.	Depression.
European allies:			
England.....	Revival, prosperity.	Prosperity, recession, depression.	Deep depression.
France.....	Depression, revival, boom.	Prosperity, recession, depression.	Depression, revival.
Italy.....	Mild depression, revival.	Recession, depression	Depression,panic.
British colonies:			
Canada.....	Revival, prosperity.	Prosperity, recession.	Depression.
South Africa.....	Revival, prosperity.	Prosperity, recession, depression.	Deep depression.
Australia.....	Prosperity.	Prosperity, recession.	Depression.
India.....	Revival, prosperity.	Prosperity, recession, depression.	Depression.
European neutrals:			
Sweden.....	Depression, revival.	Boom, recession, depression.	Depression.
Netherlands.....	Revival, prosperity.	Prosperity, recession, depression.	Depression.
South American powers:			
Argentina.....	Prosperity.	Prosperity, recession.	Depression.
Brazil.....	Prosperity.	Prosperity, recession, depression.	Severe depression.
Oriental powers:			
Japan.....	Depression, revival, prosperity.	Prosperity, recession, depression.	Depression.
China.....	Prosperity.	Prosperity, recession, depression.	Depression.
Central powers and Russia:			
Germany.....	Depression.	Depression.	Revival, Spring.
Austria.....	Depression.	Slow revival.	Revival.
Russia.....	Depression.	Depression.	Depression.

Rearranged from Willard L. Thorp, *Business Annals*, National Bureau of Economic Research, 1926, p. 86.

through the tax. On the other hand, large sums were spent for advertising or other plans for future expansion and charged as current expenses.

One of the chief reasons why the profits reported in 1917 were so much larger than in 1918 is that in the former year the tax was retroactive. Hence there was less opportunity in 1917 than in 1918 to enter into transactions which would reduce taxable income. In comparing 1917 with later years, it should be noted also that the law has been made more liberal to the taxpayer in important respects; for instance, by allowing discovery depletion and by increasing depletion allowances at large.

Finally, there is little duplication of income in the returns, but much duplication of losses. That is, the net-income figures exclude dividends received from other corporations; but if one corporation loses money and fails, it will report its loss directly, and other corporations which are its creditors or stockholders will also report what they have lost by its failure. Hence the figures in the last column of the table overstate the fluctuations in net corporate income, while the figures in column 4 understate them.

Though the boom of 1919, the crisis of 1920, and the depression of 1921 followed the pattern of earlier cycles, we have seen how much this cycle was influenced by economic conditions resulting from the war and its sudden ending. These influences were world-wide. If American business men were betrayed by postwar demands into unwise courses, so were business men in all countries similarly situated. Table 3, based upon a critical study of business conditions by Dr. Willard L. Thorp, gives a conspectus of conditions in seventeen countries, classified according to their relation to the war. It shows that the course of business affairs in the United States from 1919 to 1921 was almost exactly paralleled by the course of affairs in the leading European allies, in four great British dependencies on four continents, in the two European neutrals studied, in two South American nations, in Japan and in China. Each of these thirteen countries had its ordinary supplies for civilian uses gravely restricted during the war; to each peace brought a hectic season of activity (mildest in Italy); each suffered a recession in 1920 and a depression in 1921. In only three countries does the record differ widely from that of the United States, and these are countries where the fortunes of war and peace had an opposite cast. Russia's internal troubles kept her economic life in disorder. Germany and Austria suffered depression in 1919-1920 while their victorious opponents enjoyed prosperity, and emerged into revivals in 1920-1921 while their opponents were liquidating postwar booms. Not until this liquidation was finished did economic life resume its independent way. Even then, factors arising from the war continued to exercise an important influence.

V. FACTORS AFFECTING AMERICAN FORTUNES IN 1922-1927

Among the factors which have shaped economic developments in the United States since the first postwar cycle ended its wild career, we may note first certain unfavorable conditions which business has had to surmount.

Conditions in Other Countries.—Prosperity in other countries to which it sells its products tends to beget prosperity in the producing nation. Similarly, depression in foreign markets reacts unfavorably upon domestic business. These international influences gain in scope and energy as nations are drawn closer together by improvements in transportation and communications. Hence the business annals of the nineteenth century show a secular trend toward increasing similarity of economic fortunes among trading nations. Though capable of meeting most of its own needs and separated from the other leaders in commerce by broad oceans, the United States feels the reflex influence of business conditions in every country with which it deals on an appreciable scale.

Prosperity here is heightened by active foreign demand for our products, and depression abroad is an unfavorable factor in our home affairs.¹³

Such prosperity as the United States has enjoyed since 1922 owes less than usual to foreign stimulation and support. Table 4, a continuation of Table 3, shows that few countries have fared so well as we in the last six years. Compared with most of the nations represented, if not judged by the standard we like to set for American prosperity, the United States has been well off.

Department of Commerce figures support this inference from business annals. After an extraordinary fall from 1920 to 1921 or 1922, the value of American exports and imports began to increase again. But imports increased at the more rapid rate. In 1919-1921, the value of our imports made only 56 per cent of the value of our exports. In 1922-1927, this percentage rose to 86. That figure is decidedly higher than the prewar average of 78 per cent in 1910-1914. When 1913 records are taken as 100, the averages for 1922-1927 show the following changes:¹⁴

The physical volume of imports has increased 66 per cent.

The physical volume of exports has increased 33 per cent.

The prices of imports have increased 31 per cent.

The prices of exports have increased 38 per cent.

The dollar values of imports have increased 117 per cent.

The dollar values of exports have increased 81 per cent.

If we grant that the real goal of economic effort is to secure goods for meeting human wants, it follows that a country's gains from international trade consist of its imports. Exports represent costs—prices paid for the goods desired. In this sense, the fact that our imports have grown faster than our exports means that the outside world had increased its contribution to our economic welfare more rapidly than we have increased our contribution to the economic welfare of other countries. But from the business point of view, the preceding figures mean that by enlarging our purchases more than our sales we have stimulated trade in other countries more than other countries have stimulated trade here.¹⁵

¹³ See Willard L. Thorp, *Business Annals*, National Bureau of Economic Research, 1926, pp. 73-100.

¹⁴ See *Commerce Yearbook*, 1928, Vol. 1, pp. 86 and 91.

¹⁵ The percentage changes in our imports and exports have varied widely from one class of commodities to another and from country to country. It is solely to the broadest features of our foreign commerce as a whole that the statements in the text refer. It should be noted also that the discussion is confined to the merchandise factor in international dealings. A fuller discussion covering "invisible" as well as visible items may be found in Chap. XI, *Foreign Market and Loans*

TABLE 4.—CONSPECTUS OF BUSINESS FLUCTUATIONS IN 17 COUNTRIES 1922-1927

Country	1922	1923	1924
United States.....	Revival, prosperity.	Prosperity, recession.	Mild depression, revival.
European allies:			
England.....	Depression.	Depression.	Depression (lessening).
France.....	Revival.	Prosperity.	Prosperity.
Italy.....	Depression.	Depression, revival.	Prosperity (moderate).
British colonies:			
Canada.....	Depression, revival.	Prosperity (moderate).	Recession.
South Africa.....	Depression.	Revival.	Prosperity (mild).
Australia.....	Revival (slow).	Revival.	Recession (mild).
India.....	Depression.	Revival (slow).	Revival.
European neutrals:			
Sweden.....	Depression, revival.	Revival.	Prosperity (mild).
Netherlands.....	Depression.	Depression.	Revival.
South American powers:			
Argentina.....	Depression.	Depression (lessening).	Revival.
Brazil.....	Depression (lessening).	Revival.	Recession.
Oriental powers:			
Japan.....	Depression.	Depression.	Depression.
China.....	Depression.	Depression.	Depression.
Central powers and Russia:			
Germany.....	Revival, recession.	Depression.	Revival, check.
Austria.....	Recession (uneven).	Depression.	Depression (financial).
Russia.....	Depression, revival.	Revival, recession.	Depression, revival.
	1925	1926	1927
United States.....	Prosperity.	Prosperity, slight recession at close.	Mild contraction.
European allies:			
England.....	Depression.	Depression.	Revival.
France.....	Prosperity.	Prosperity, recession.	Depression, revival.
Italy.....	Prosperity.	Recession.	Depression.
British colonies:			
Canada.....	Revival, prosperity.	Prosperity.	Prosperity.
South Africa.....	Prosperity.	Prosperity (mild).	Uneven prosperity.
Australia.....	Revival, prosperity.	Prosperity.	Prosperity.
India.....	Prosperity (mild).	Depression.	Revival.
European neutrals:			
Sweden.....	Prosperity (mild).	Prosperity (uneven).	Prosperity.
Netherlands.....	Prosperity (mild).	Prosperity (mild).	Prosperity.
South American powers:			
Argentina.....	Prosperity.	Recession.	Revival.
Brazil.....	Depression.	Depression.	Depression.
Oriental powers:			
Japan.....	Depression, revival.	Depression.	Depression.
China.....	Depression.	Depression.	Depression.
Central powers and Russia:			
Germany.....	Revival, recession.	Depression, revival.	Revival.
Austria.....	Depression.	Depression, revival.	Revival continued.
Russia.....	Prosperity, recession.	Prosperity.	Prosperity.

Further, unless the most inclusive of statistical indexes are grievously in error, our domestic business as a whole has grown faster than our foreign business. Comparisons like those just given, which credit exports with an 81 per cent increase, show that on the basis of 1913 records as 100:

The dollar volume of the average national income per year in 1922-1926 increased 121 per cent.

The dollar volume of average yearly bank clearings outside of New York in 1922-1927 increased 175 per cent.

So, too, the Department of Commerce finds that the value of manufactured goods produced in the United States has grown much faster since 1919 than the value of manufactured exports. Indeed, the fraction of these products exported in 1925 was smaller than the prewar average.¹⁶

In particular, American prosperity has been marred by agricultural depression, and agricultural depression has been due in part to foreign conditions.

The war brought an increased export demand for American breadstuffs and meat. When the United States entered the struggle, and millions of tons of shipping were required for transporting our army to France, there was further reason for avoiding the long hauls of food from Argentina, Australia and India. There was danger also that enlistments would reduce our harvests. One of the first war measures of the Government was the creation of a Food Administration. In other industries, price-fixing meant setting of maximum prices; Congress itself set a minimum price of \$2 a bushel on wheat, and authorized the President to raise the minimum higher if need be.

Farmers responded to these war demands as fully as they could. According to the census returns, they had increased the area harvested by 28 million acres between 1899 and 1909; between 1909 and 1919 they added 37 million acres. Yields are always at the mercy of the weather; but the Harvard index of physical production in agriculture shows an

¹⁶ Exports of manufactured goods in relation to domestic production, in millions of dollars, are shown in the following table.^a The value of materials entering factories is necessarily approximate, and hence is expressed as a maximum or minimum.

Year	Materials excluding duplication,	Value added by manufacture	Total value	Export	
				Value	Per cent
1919.....	12,500-14,500	24,800	38,300-40,300	5,449	13.5-14.2
1921.....	8,000- 9,400	18,330	26,300-27,700	2,722	9.8-10.3
1923.....	11,500-13,200	25,850	37,300-39,100	2,625	6.7- 7.0
1925.....	12,000-13,500	26,800	38,500-40,000	3,079	7.6- 8.0

^a From *Commerce Yearbook*, 1928, vol. I, p. 93.

acceleration in the rate of growth when averages are taken for several years. This index rose 5 points on the 1899 basis between 1904-1908 and 1909-1913, 12 points between 1909-1913 and 1914-1918, and 2 points more between the war period and 1919-1921—though the last year was one of poor crops.

Thus the war left American agriculture with expanded facilities for production. And the good times had lasted long enough to let even this occupation, which must wait upon nature, base its finances on the unstable prospect of continued high prices and high profits. In the corn belt, the regions where wheat growing was expanding, and in certain tobacco-planting sections, farm lands had risen to prices unheard of before, and thousands of enterprising men had bought all the land they could acquire by stretching their credit to the utmost.

The imperious needs of underfed Europeans had swelled our agricultural exports in 1919 to more than 4 billion dollars—much more than the war-year figures. Even in 1920, agricultural exports were valued at nearly 3.5 billions. But then came a sudden fall in the foreign demand. The total value of agricultural exports shrank in 1921 by 1.3 billion dollars, and in 1922-1927 it fluctuated about an average lower than that of 1921—1.9 billions as compared with 2.1.

For this shrinkage in exports it is easy to account. Price reductions are a large part, but not all, of the story. After demobilization, European farmers could get all the labor they required; gradually they restored their depleted stocks of farm animals and their accustomed use of fertilizers. Also there were fewer European mouths to feed in 1920 than there had been in 1917, or even in 1910. Thus Europe became less dependent on foreign countries for food than it had been during the war. Second, shipping became superabundant, freights fell to very low levels, and the world's commerce slipped back toward its old channels. The United States lost most of its war-time advantage from a short haul. Third, our competitors in food production—especially Argentina, Canada and Australia—were expanding their output of meat and cereals vigorously. With cheaper lands, they could make things most uncomfortable in world markets for farmers in the United States. Finally, cotton crops were small in these years, mainly because of the boll weevil, and the high level of prices made it difficult for the impoverished countries of Europe to buy the quantity needed to furnish employment in their factories and cotton fabrics to their people.

Reckoned in physical units, our agricultural exports remained above the prewar levels in 1922-1927. But they fell below the levels to which American farmers had adjusted their output in 1917-1920. To sell even these reduced quantities, they have had to accept prices which in most cases were low in comparison with the prices of other commodities.

TABLE 5.—DOMESTIC EXPORTS OF AGRICULTURAL PRODUCTS FROM THE UNITED STATES, BY AVERAGES OF PERIODS OF YEARS

Calendar years	Total value of agricultural exports (domestic)	Values of exports of		Physical quantities of exports of	
		Five grains	Cotton	Five grains	Cotton
	Millions of dollars	Millions of dollars	Millions of dollars	Millions of bushels	Millions of bales
1909-1913.....	966.5	88.1	541.7	112.9	8.5
1914-1918.....	1,842.8	386.8	511.1	315.2	6.1
1919-1921.....	3,221.1	638.4	936.0	358.9	6.4
1922-1927.....	1,942.1	288.6	855.3	191.6	7.8

Sources: *Commerce Yearbooks*.*Monthly Summary of Foreign Commerce*.*Foreign Commerce and Navigation of the United States*.

Table 5 shows the basic facts concerning exports. Table 6, comparing production and exports, is even more illuminating. More than in average prewar years, American farmers, with their increased output, had to depend on the domestic markets. They fared ill, and their hard times created more difficulties for other American industries than the prevalence of depression in foreign countries.

TABLE 6.—PRODUCTION OF AGRICULTURAL PRODUCTS IN THE UNITED STATES AND PROPORTION EXPORTED, BY CENSUS YEARS

(In millions of dollars)

Year	Agricultural products excluding duplication and seeds	Domestic exports of agricultural products	Per cent exported	Value of manufactured food-stuffs ^a	Export of manufactured food-stuffs	Per cent exported ^a
1899.....	3,450	^b 818.7	23.7	1,700- 1,900	312	16.4-18.4
1904.....	4,600	^b 843.0	18.3	2,250- 2,550	296	11.6-13.2
1909.....	6,100	903.2	14.8	2,950- 3,450	281	8. 2-9.5
1914.....	7,500	1,114.0	14.9	3,750- 4,350	374	8. 6-10. 0
1919.....	15,700	4,096.0	26.1	9,500-10,900	1,963	18. 0-20. 7
1921.....	9,200	2,114.9	23.0	6,250- 6,950	685	9. 9-11. 0
1923.....	11,300	1,820.5	16.1	7,200- 8,000	583	7. 3- 8. 1
1925.....	12,400	2,136.2	17.2	8,000- 9,000	574	6. 4- 7. 2

Sources: *Commerce Yearbooks* and *Agricultural Yearbooks*.^a Maximum and minimum figures are used because the value of materials entering factories must be estimated from imperfect data.^b Values for calendar years estimated by averaging the values for the two adjacent fiscal years ending June 30.

The Prime Factor Making for Prosperity.—Past experience has taught us that a period of depression will presently be followed by a business revival. But when this revival will come, and whether it will

develop into full-blown prosperity, are matters which the past does not tell. Each cycle has its own special features which require special explanations. How the United States managed to attain a higher per capita income in 1922-1927 than ever before, though conditions in most other countries were not favorable, and though its basic industry, agriculture, was depressed, is the outstanding problem of the cycles of 1921-1924, 1924-1927 and 1927 to date.

The preceding chapters give many partial answers to this question. All these answers may be condensed into one: Since 1921, Americans have applied intelligence to the day's work more effectively than ever before. Thus the prime factor in producing the extraordinary changes in the economic fortunes of the European peoples during the nineteenth century is the prime factor in producing the prosperity of the United States in recent years. The old process of putting science into industry has been followed more intensively than before; it has been supplemented by tentative efforts to put science into business management, trade-union policy, and Government administration.

Concrete instances of technical improvements in many mining, metallurgical, and fabricating processes are given in the chapters on industry. The remarkable results achieved are demonstrated statistically from census data showing output per worker. Similar, though less striking, instances appear in the chapter on construction. Without help from any extraordinary invention, the railroads also have attained a higher level of operating efficiency.¹⁷ In farming there is an intriguing report of new machines and new methods coming into use. Here too, the record of average output per worker shows considerable gains.

All this means that since 1921 Americans have found ways of producing more physical goods per hour of labor than before. They have received larger average incomes because they have produced more commodities and services.¹⁸ That is true in the aggregate, although not all

¹⁷ Dr. Julius H. Parmelee, director of the Bureau of Railway Economics, has kindly furnished a backward extension of the "index of railway operating efficiency," mentioned by Professor Cunningham in a preceding chapter. The yearly averages, on a 1920-1924 base, run as follows: 1920, 99.7; 1921, 95.3; 1922, 96.5; 1923, 103.5; 1924, 104.8; 1925, 109.4; 1926, 113.5; 1927, 115.2; 1928, Jan.-Nov., 118.1.

¹⁸ Increased productivity per man at work does not necessarily mean larger real income per head of the population. In some industries the output per worker rises in periods of business depression when total output falls; because the less efficient hands have been laid off; because the men kept on the pay roll are afraid of discharge when new jobs are scarce and so work harder than usual; because only the best-equipped or best-managed plants can keep running at all, or for other reasons. As will presently be shown more at length, the number of men at work in two of our greatest branches of industry—farming and manufacturing—has been reduced. But the reductions in numbers at work have not offset the increases in output per remaining worker, even in these branches. There remains a net gain in real income per capita for the whole country.

who have contributed to the increase in physical production have shared in the increase of real income. The important exceptions to the general rule will be discussed presently.

The reality of the gains made by improving the technique of farming, railroading, manufacturing, and building seems to be established beyond question. There is room for doubt only concerning the pace of recent progress in comparison with earlier spurts of technical improvement. Comparisons between output per worker in later years and in 1919 often show sensational gains. But that is largely because 1919 made a wretched record of physical inefficiency. According to Chapter II, Industry, the census of manufactures places this year below 1914, and still further below 1909, in output per worker. The above-cited estimates of national income per capita in dollars of constant purchasing power confirm this showing, and so do index numbers of physical production in Table 1. Nor does 1921, a year of severe depression, afford a satisfactory basis of comparison. Thus it is difficult to measure the technical progress of 1922-1927, with the data now available. It is still more difficult to make reliable measurements for earlier years, when censuses were taken at longer intervals and fewer supplementary figures were published. But doubts whether the rate of improvement in the past six years is unprecedented are not of great moment. It remains clear that the Industrial Revolution is not a closed episode; we are living in the midst of it, and the economic problems of to-day are largely problems of its making.

While the details of the latest technical advances always possess thrilling interest, perhaps there is more of promise for the future in the chapters on recent changes in economic policy. The efforts to apply scientific methods to such matters are in an early stage of development. The sciences which underlie these efforts—psychology, sociology, economics—are far less advanced than physics and chemistry. The experts who are making the applications—personnel managers, advertising specialists, sales directors, business economists and statisticians—are less rigorously trained than engineers. It is even harder to measure the results they achieve than to determine what difference a new machine makes in unit costs. Nor are business executives so generally convinced of the practical value of the rather intangible services which the new professions can render as they are of the indispensability of engineering advice. Yet it is conceivable that applications of the social sciences, now in their tentative stage, will grow into contributions of great moment to economic welfare. Certainly the chapters in this report on marketing, management and labor show that many enterprising business concerns and some enterprising trade unions are trying new policies, and often getting results which they deem good.

Perhaps none of the changes reported here will prove more important in the long run than the change in the economic theories on which the

American Federation of Labor and certain outside unions are acting. That organizations of wage earners should grasp the relations between productivity and wages, and that they should take the initiative in pressing constructive plans for increasing efficiency upon employers, is not wholly without precedent; but the spread of such ideas and the vigor with which they are acted on by large organizations must startle those who have believed that trade unions are brakes upon economic progress.

Scarcely less significant is the report from the employing side. Our investigators believe that the art of business management turned a corner in 1921, cultivating since then more skillful understanding of the whole situation and nicer adjustment of means to the immediate environment. Numerous corporations and some trade associations are maintaining research bureaus of their own. Among the managerial devices experimented with, are co-ordinated staffs in place of one "big boss," bonus payments to executives and "incentive wages" for the rank and file, operating budgets, forecasts of business conditions, close inventory control, personnel management and employee representation. Most of these devices are attempts to understand and to utilize the psychological forces which control human behavior, or the economic forces which control business activity. "There is today not only more production per man, more wages per man and more horse power per man; there is also more management per man."¹⁹ Marketing—traditionally the part of business in which native shrewdness, experience and "personal magnetism" have been held all-important—even marketing is being permeated by applied psychology. Costly investigations of "consumer appeal," of advertising "pull," of "sales resistance"—the very terms

¹⁹ On this passage Colonel M. C. Rorty comments as follows:

One of the most significant results arising from improvements in the science of management has been an increasing ability to secure from large units or "chains" the type of individual efficiency that a few years ago could be secured only in the small organization working under the direct supervision of a competent employer-owner. Under the older type of organization there was a gain in efficiency with size, up to the point where the reductions in costs, through ability to specialize and functionalize the work of a larger group of workers and the increases in process, purchasing and selling efficiency under larger scale operation, began to be more than offset by a reduced general efficiency due to the inability of the employer-owner to maintain close contacts with the members of the enlarged organization. Recent developments in management methods, and in accounting and statistical control, have apparently broken down these former economic limitations on the size of the individual organization or "chain," with the result that practically all types of business and industry are now open to efficient large-scale corporate control. If this tendency persists, it may represent a fundamental economic change having very far-reaching consequences. The field of operations for the independent owner-manager will be steadily restricted, and the young man of capacity and intelligence will have to look forward more than ever before to a career in which, except by some rare combination of good fortune and adaptability to circumstances, he will continue throughout to be a subordinate worker in a large corporation, organization.

would have been unintelligible to our fathers—show that sales managers are trying to base their planning upon factual studies of human behavior. And the rapid spread of chain stores and of installment selling show that marketing methods are no more standing still than is industrial technique.

By the side of these rather definite changes in trade-union and in business policy, we may set the influence of certain general ideas which have gained wide currency in the last few years.

First, there is the spirit of caution, manifested in minimizing future commitments, in hand-to-mouth buying by merchants, in efforts to keep down inventories or to pass the need for keeping large stocks on to the concern from which one buys. This lesson is taught afresh by every great crisis. The staggering financial losses of 1920–21 enforced the old moral emphatically; the sagging course of commodity prices has kept it in mind, and the increased operating efficiency of producers and railroads has made possible close scheduling of merchandise transactions. The Florida land boom and the stock-market adventure of 1928 indicate the course American business might have taken in the absence of all restraint.

Associated with the prudence which has tempered enterprise is a more systematic effort to learn from experience. Here there seems to be a new emphasis, if not a new practice. Most can be learned from experience when it is exactly known, and seen in relation to its environment. The most exact records of economic experience are statistical in form. Since the war, an increasing number of officials, publicists and business men have fostered the keeping of better statistical records, and have analyzed past experience as a guide to future planning. Every reader must realize that, without the aid of the new statistics which this widespread effort has provided, the present survey of recent economic changes would be more imperfect than it is. What is of use in providing a factual basis for determining economic trends at large is not less useful in determining the factors which affect the success of private enterprises.

More publicity concerning business operations and closer co-operation among business enterprises should also be noted as characteristic of the day. These are features of American practice which impress all our foreign visitors; the older rules of secretiveness and rivalry seem to have maintained themselves more rigidly in other countries. Perhaps the growth of trade associations and the expansion of their programs is the clearest evidence of the new attitude. No doubt every industry has its recalcitrants who, for one reason or another, refuse to play on the team; but certainly there is a marked increase of readiness to join co-operative programs of research and publicity, to interchange trade information, to standardize products where standardization is good business, to consult about methods and practices—in short, to treat the industry for many

purposes as a unit in whose prosperity all members have a common interest, and to inspire good will in the public by open dealings.

Fourth, belief in the economy of high wages has become prevalent among the abler business executives, much as belief in increasing productivity has become prevalent among the abler trade-union leaders.²⁰ To find a market for the wares turned out by mass production and urged on consumers by national advertising, it is patently necessary to have corresponding purchasing power in the hands of consumers. Since studies of the national income have demonstrated that wages constitute by far the largest stream of personal income, it follows that wages per man—or rather, wages per family—must be increased as production is expanded. Perhaps most people would have accepted this argument in the abstract at any time in the last hundred years. But many employers in the past would have retorted with the assertion that high wages undermine the moral stamina of the masses. To-day such talk is far less common in the United States. Not only do many business executives admit the general principle that paying high wages is good policy; they are ready to assume what they consider their share of the responsibility for putting the principle into practice.

The share of Government in recent economic changes has not been made the subject of a separate chapter. But the service of one public agency, the Federal Reserve System, is treated in the chapter on banking, and the services of the Departments of Commerce, Agriculture, and Labor in collecting and diffusing knowledge are mentioned in several places. If the prime factor making for prosperity has been the application of intelligence to the day's work, then Government agencies must be credited with an indispensable, though indirect, part in what has been accomplished.

Further, our Federal Government has of late years manifested a more intelligent attitude toward problems of economic organization than it has manifested in the past. To treat business enterprises as agencies for performing social services, to facilitate their operations, and to hold them to this conception of their function, is a policy exceedingly difficult to carry out. It requires a delicate combination of constructive intervention at some points and of clearing away obstacles at other points. No one can say that this policy has become characteristic of Government in all of its dealings with business, any more than one can say that the doctrine of high wages is accepted by all employers, or the theory that increased productivity benefits labor is accepted by all trade-unionists. Yet no one who has watched Federal policy, as practiced by the numerous agencies which have to deal with economic issues, will question that a change has occurred. Efforts to check extortion have not ceased; but more regularly than in the past they are accompanied by active efforts

²⁰ The rise of this idea is sketched in Section VII, p. 885.

to heighten the efficiency of what are judged to be legitimate enterprises. Farmers and exporters are not the only beneficiaries.

To repeat: all of the changes making for prosperity which have been recalled in this section, together with many others noted in preceding chapters, can be summed up under a single head—applying fresh intelligence to the day's work. From the use of abstruse researches in pure science to the use of broad economic conceptions and the use of common sense, the method of American progress in 1922–1928 has been the old method of taking thought. Peace let us turn our thoughts to common matters, the hard times of 1921 spurred our efforts, and the complicated consequences our efforts produced have kept us thinking.

VI. HARDSHIPS CAUSED BY INCREASING EFFICIENCY

Among the consequences which improvements in industrial technique or in business methods produce in an individualistic state, are hardships of various kinds. The victims are partly business competitors who are a bit slow in adopting new methods; partly industries or geographic regions affected indirectly; partly individuals who find their services no longer needed. To follow all the complicated difficulties produced by recent economic advances in the United States is out of the question; but a few chains of cause and effect may be traced link by link. For the queer mixture of prosperity and depression noted at the outset of this chapter is due largely to the pressure which some group's growing efficiency puts upon other groups.

Reductions in Unit-costs, Prices, and Profits.—The technical advances of recent years in the United States have been largely advances in the direction of more economical production. A greater volume of goods has been turned out at lower costs per unit. Now larger supplies sent to market tend to depress prices.

In most periods of prosperity this tendency has been more than offset by an increase in demand. The cases have been few indeed when the index numbers of wholesale prices have failed to rise in the prosperous phase of a cycle. And there are clear marks of the standard reaction in our period. The Bureau of Labor Statistics index number advanced from 91.4 in January, 1922, to 104.5 in March, 1923. On the mild recession of that year it reversed its course and declined to 94.9 in June, 1924. When business picked up again, the index began to climb once more, reaching 104.8 in March, 1925. From that point it receded unsteadily to 93.7 in April and May, 1927. Judged by prewar standards, these fluctuations have about the average amplitude.²¹ The remarkable fact is that prices sagged through the prosperous year 1926. Taking the

²¹ Here I am using the enlarged Bureau of Labor Statistics index on the 1926 base. See *Monthly Labor Review*, July, 1928. For a comparison of the amplitudes of prewar and postwar cycles in wholesale prices, see Table 11, p. 893.

whole period from 1922 to 1927, the trend has been a gently declining one. Prices at wholesale have fallen at the rate of 0.1 per cent per annum.²²

Monetary factors, which are often held responsible for changes in wholesale price levels, can scarcely be held responsible in this case. In 1922-1927 international gold movements added \$760,000,000 net to our stock, and "earmarking" operations took less than \$200,000,000 of this sum out of monetary use. The banks suffered no stringency; indeed they increased their other investments, because commercial borrowers asked less credit than the banks would have been glad to lend. So far as domestic conditions are concerned, business activity and the easy money market might have combined to produce a vigorous advance of prices.

But, though the fact is commonly overlooked, the course of prices cannot be explained in any commercial nation of these days by domestic conditions alone. Commodities subject to international trade on a considerable scale cannot long maintain prices higher in one country than in another by margins which exceed costs of carriage and handling, plus import duties. Price fluctuations in different countries are tied even closer to each other, as a rule, than actual prices; for though import duties may establish a considerable spread between market prices in two countries, these duties are not subject to very frequent change. Shipping charges have been particularly low in the period under review, so that this factor has interfered less than usual with market uniformity. Even countries with inconvertible currencies are bound to the world system of prices, and to its fluctuations, through the rate of exchange.

It is true that a large proportion of the articles dealt in on wholesale markets, in such a country as the United States, are not exported or imported on an appreciable scale. But economists have long since shown that the prices of different goods prevailing in any country at any time are closely related to each other through the channels of supply and demand. Domestic prices thus constitute a system, in the sense that a change in the price of any commodity affects, and is in turn affected by, changes in the prices of a host of other goods. The statistical aspect of these interrelations is briefly developed in the preceding chapter on Price Movements. Since all domestic prices are thus related to each other, and since a considerable fraction of these prices are related to foreign prices, changes in the general level of wholesale prices in any one country must be related to the changes taking place in the wholesale price levels of other countries.

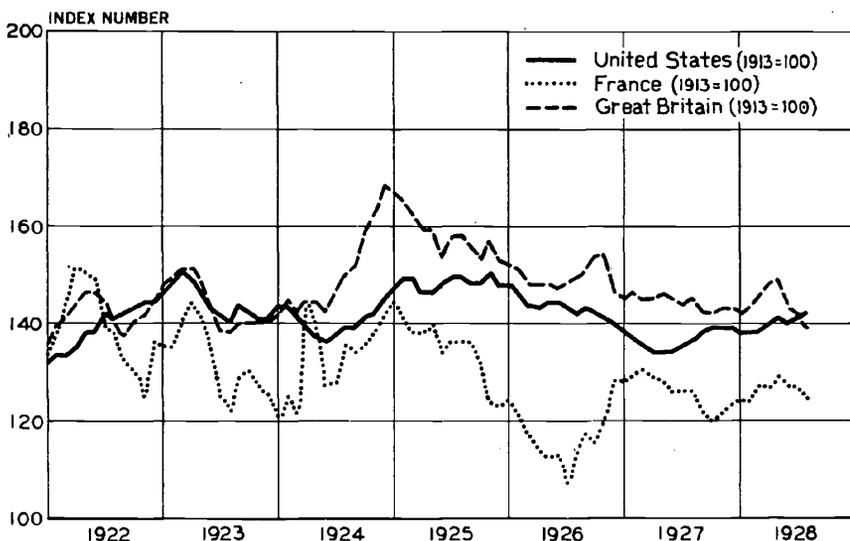
The validity of this conclusion has been statistically demonstrated. For example, comparisons covering the 20 years 1890-1910, based on American, English, French and German wholesale indexes of unlike

²² See Chap. IX, Price Movements.

construction show strict conformity in the major movements and prevailing conformity in the minor movements also.²³ Even during the war, when commerce was so greatly hampered, American prices in gold followed the gyrations of European paper prices reduced to a gold basis.²⁴ Again in the first postwar cycle, the conformity discussed above in general business conditions in a long list of countries was matched by conformity in the course of wholesale prices, so far as index numbers are available to show what happened.

That a similar conformity of wholesale price fluctuations in various important countries marked the period 1922-1927 appears from the following charts, which show index numbers for 15 countries on a prewar base, with the paper-money entries reduced to their gold equivalents. It will be noted that the curves, which spread unusually far apart during the war, have approached each other again. This tendency is most marked in the countries where prices had diverged most widely from the average course. Also it will be noted that prices in the United States pursue a middle path. They run on a lower level compared with the prewar base than prices in some countries, and on a higher relative level than in other

CHART 1.—INDEX NUMBERS OF WHOLESALE PRICES IN UNITED STATES, GREAT BRITAIN AND FRANCE, 1922-1928.



²³ See Chart 8 in the writer's *Business Cycles*, Berkeley, California, 1913, p. 121. Index numbers including substantially identical lists of commodities in the United States and England, the United States and France, and the United States and Germany, show scarcely closer agreement than the standard series made from divergent lists.

²⁴ See "International Price Comparisons. History of Prices during the War." War Industries Board, *Price Bulletin* No. 2, Washington, 1919.

CHART 2.—INDEX NUMBERS OF WHOLESALE PRICES IN UNITED STATES, NETHERLANDS, SWEDEN AND GERMANY, 1922-1928.

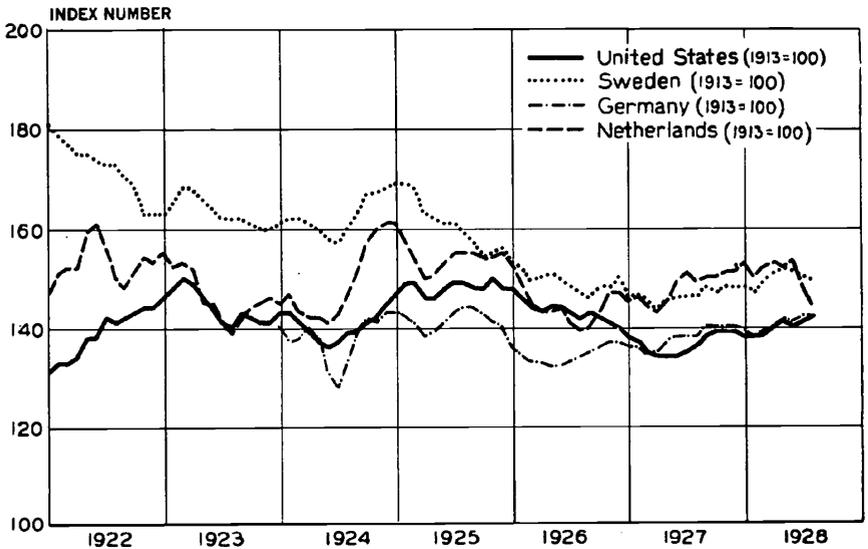


CHART 3.—INDEX NUMBERS OF WHOLESALE PRICES IN UNITED STATES, BELGIUM AND ITALY, 1922-1928.

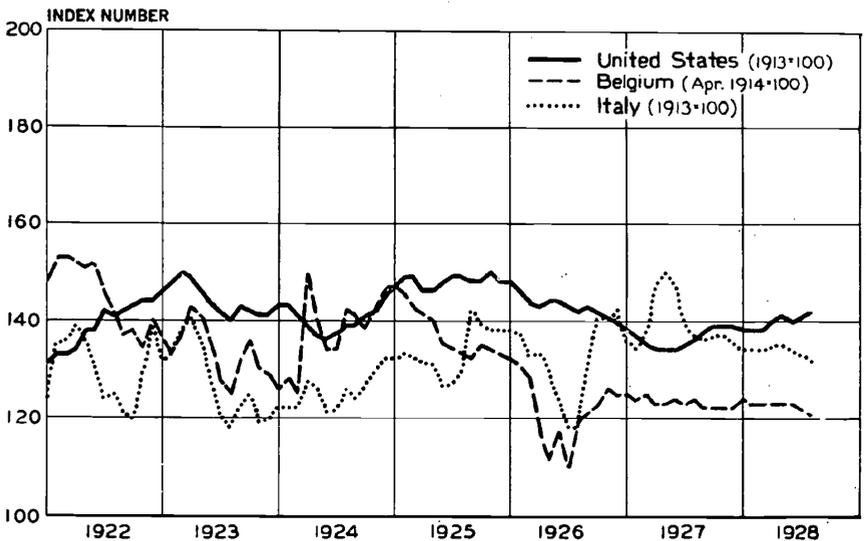


CHART 4.—INDEX NUMBERS OF WHOLESALE PRICES IN UNITED STATES, AUSTRIA AND SWITZERLAND, 1922-1928.

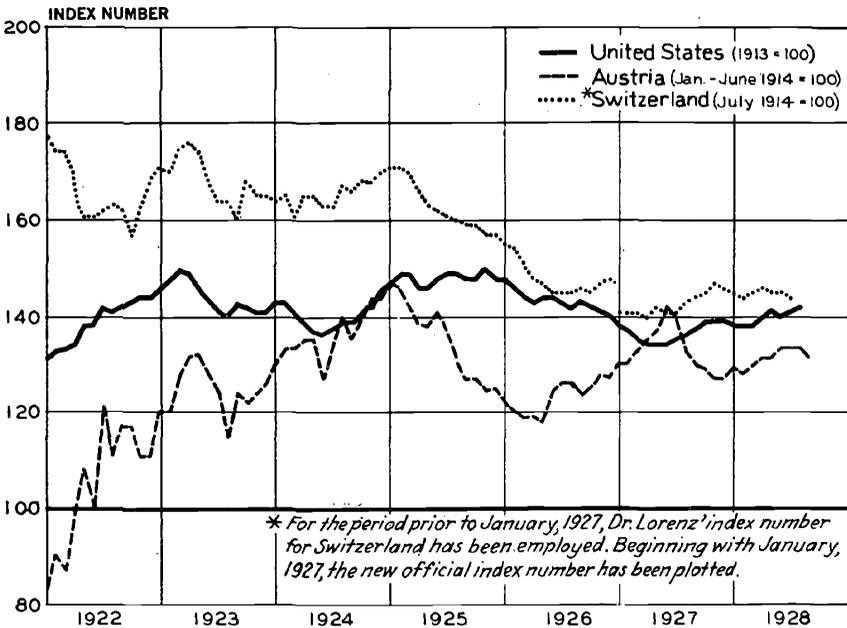
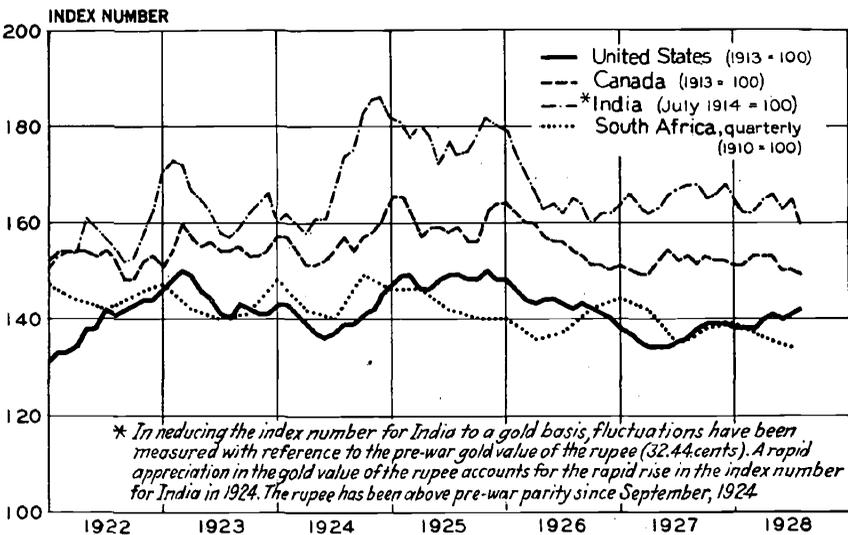
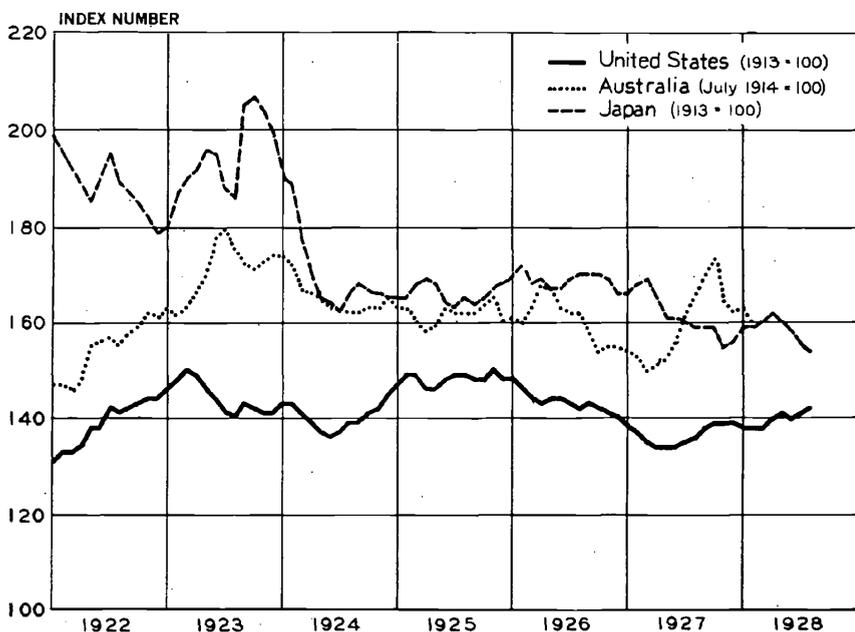


CHART 5.—INDEX NUMBERS OF WHOLESALE PRICES IN UNITED STATES, CANADA, INDIA AND SOUTH AFRICA, 1922-1928.



countries. Of course, market fluctuations in this country have influenced quotations in every other nation; but they have also been influenced by the latter quotations. It seems a fair inference from these charts, with their convincing evidence of a common bond among the changes in price levels of different nations, that prices in this country could not have risen rapidly in 1922-1927 unless the forces behind the local advance had been powerful enough to pull world markets up.²⁵

CHART 6.—INDEX NUMBERS OF WHOLESALE PRICES IN UNITED STATES, JAPAN AND AUSTRALIA, 1922-1928.



²⁵ The index numbers used in the charts are as follows:

United States—United States Bureau of Labor Statistics. Revised index shifted to 1913 equal 100.

Great Britain—"Statist" index number, 1913 equal 100. From January, 1922, to April, 1925, original value of the index was deflated by the exchange rate, New York on London.

France—Index number from the *Bulletin de la Statistique Générale de la France*, deflated by gold parity value, New York on Paris, 1913 equal 100. Values for June, July, and August, 1928—new currency values now published in the *Monthly Bulletin of Statistics* of the League of Nations.

Netherlands—Official index compiled by the Central Bureau of Statistics. The index was originally computed on the base 1901-1910, and has been shifted to the 1913 base in the *Monthly Bulletin of Statistics* of the League of Nations. From January, 1922, to April, 1925, the original value of the index was deflated by exchange rates, New York on Amsterdam.

Sweden—Compiled by Kommerskollegium, 1913 equal 100.

Thus the reduction in unit costs, and the increase in the supply of wares turned out by improved methods, combined with international forces to keep the American price level from rising buoyantly in the active years of our period, as it has done in most periods of prosperity. Presumably, the international factors have been more potent than the domestic factors in producing the results. Yet we may count the reductions in cost by industrial leaders and the increases in output among the manifestations of efficiency which have contributed to the difficulties of making money in this period.

Sagging prices make it harder to conduct business with profit because many of the expenses of an enterprise are fixed by long contracts or by understandings hard to alter, and cannot be cut to offset a reduction in selling rates. Above, we noticed how the rapidly rising prices of the war and of 1919 swelled paper profits and reduced bankruptcies. Also we noted how the sudden fall of prices in 1920-21 turned profits into losses and swelled bankruptcies. In 1922-1927, we find an intermediate result. Concerns in the van of technical progress have done handsomely. But the prices at which they could market their large outputs with profit to themselves have meant loss and even failure to less aggressive rivals. Dun's statistics of commercial failures yield the annual averages shown in Table 7. The average number of failures in 1922-1927 has

Germany—1924 through 1928, new index number, 1913 equal 100. Source: *Wirtschaft und Statistik*.

Belgium—1922 through 1926, April, 1914 equal 100, gold basis. Series compiled by Ministry of Industry and Labor Statistics. Deflated by gold parity value—New York on Brussels. Values for 1927 and 1928 published on the new currency base.

Italy—1922 through 1927, gold basis. Gold parity value, New York on Rome, used to deflate series compiled by Chamber of Commerce and Industry of Milan, 1913 equal 100. 1928 values quoted on new currency base.

Austria—For 1922 kronen prices were deflated by gold parity values. 1923-1927, gold basis, January-June 1914 equal 100, as published in the *Statistische Nachrichten*. New series begins in 1928. The value for January, 1928, is identical with the value of the former series.

Switzerland—For 1922 through 1926, Dr. Lorenz index number, July 1914 equal 100. From January, 1927, new official index number used. From January, 1922, to October, 1924, the original value of the index was deflated by the exchange rate, New York on Berne.

Canada—Dominion Bureau of Statistics—1913 equal 100.

Japan—Bank of Japan, 1913 equal 100. From January, 1922, to August, 1928, the original value of the index was deflated by exchange rate, New York on Yokohama.

South Africa—Official index number compiled by Census Office, 1910 equal 100.

Australia—Commonwealth Bureau of Census and Statistics, July, 1914 equal 100.

India—Official index number of wholesale prices at Calcutta, compiled by the Department of Statistics, July, 1914 equal 100.

actually exceeded the number in 1921, but the total and the average liabilities have grown smaller.

TABLE 7.—COMMERCIAL FAILURES

	Annual averages		
	Thousands of failures	Millions of dollars of liabilities	Average liabilities in thousands of dollars
1919-20.....	7.7	204	27
1921.....	19.7	627	32
1922-1927.....	21.5	513	24

Source: *Commerce Yearbook*, 1928, vol. I, p. 51.

“Profitless prosperity,” like so many popular paradoxes, combines an element of truth with an element of falsehood. One expects a period of unusually rapid increase in efficiency to be a period of more than usual inequality of profits. This expectation has been borne out by the experience of 1922-1927. As a whole, corporate incomes reported to the Internal Revenue Bureau and summarized in Table 2, have been large in the latest years for which we have data; but they have not equaled the records of 1916-1919.

Whether the enterprises which have lagged behind in cost reductions and in earnings are mainly smaller enterprises, as has been contended, is less sure. Of course this contention tends to become true with the lapse of time, for the simple reason that the exceptionally profitable enterprises grow exceptionally fast. The profitable enterprises of to-day tend to become the large enterprises of tomorrow. But Dr. Thorp's section of the chapter on industry shows that there is no close relationship between large size and low unit-cost, or between large size and high rates of profit. It seems to be middle-sized enterprises, rather than small ones, which have felt the severest pressure. But the facts, as the census shows them, are complicated and cannot be adequately presented in a brief statement.

The Competition of New Products and New Tastes.—Scarcely less characteristic of our period than unit-cost reductions is the rapid expansion in the production and sale of products little used or wholly unknown a generation or even a decade ago. Among consumers' goods, the conspicuous instances are automobiles, radios and rayon. But the list includes also oil-burning furnaces, gas stoves, household electrical appliances in great variety, automobile accessories, antifreezing mixtures, cigarette lighters, propeller pencils, wrist watches, airplanes, and what not. Among producers' goods we have the truck and the tractor competing with the horse and the mule, reinforced concrete competing with

brick and lumber, the high-tension line competing with the steam engine, fuel oil competing with coal, not to mention excavating machines, belt conveyors, paint sprayers, and "automatics" of many sorts competing with manual labor.

Changes in taste are in large part merely the consumers' response to the solicitation of novel products, effectively presented by advertising. But that is not all of the story; the consumer is free to choose what he likes among the vociferous offerings, and sometimes reveals traces of initiative. In what other terms can one explain the changes in diet pointed out in the first chapter? Americans are consuming fewer calories per capita; they are eating less wheat and corn but more dairy products, vegetable oils, sugar, fresh vegetables and fruit. More families than ever before are sending their sons and daughters to college—surely that is not a triumph of "high-powered" salesmanship. Young children, girls and women, are wearing lighter and fewer clothes. The short skirt, the low shoe, the silk or rayon stocking, "athletic" underwear, the soft collar, sporting suits and sporting goods, have an appeal which makers of rival articles have not been able to overcome. And, in a sense, every consumers' good, from college to candy, is a rival of every other consumers' good, besides being a rival of the savings bank.

"When the makers of one product get a larger slice of the consumer's dollar, the slices left for the makers of other products get smaller." This way of accounting for the hardships met by certain long-established industries in 1922-1927, such, for example, as the leather and woolen trades, is popular and sound, so far as it goes. But it does not take account of the fact that desire for new goods, or the pressure of installment purchases once made, may lead people to work harder or more steadily, and so get more dollars to spend. Presumably the enticements of automobiles and radios, of wrist watches and electric refrigerators, of correspondence courses and college, have steadied many youths, set many girls hunting for jobs and kept many fathers of families to the mark. Also a considerable part of the country's former bill for intoxicants has been available to spend in other ways. How much allowance we should make for these factors nobody knows. All one can say with assurance is that consumption per capita has increased in volume to match the increased per capita output of consumers' goods taken altogether. Yet the increase in consumption has not been rapid enough to prevent shifts in the kind of goods bought from pressing hard upon the makers of articles waning in popular favor.

So too in the realm of producers' goods. Despite the active building campaign, the lumber industry has had hard sledding. Coal mining has not prospered, and can attribute part of its difficulties to other fuels, water power, and more economical ways of burning coal itself. Breeders of draft animals have found their markets cut into by motor vehicles.

Railways have lost traffic to trucks and omnibusses—though the loss in freight tonnage is held by Professor Cunningham to be less than the public supposes. Steam-engine builders have had to change their products or reduce their output. It is not necessary to multiply examples; most technical improvements reduce the demand for some other good, and so create difficulties for those who supply the latter.

Geographical Shifts in Industry and Trade.—Just as definite a gain may be made in productivity by shifting factories to better locations, or by reorganizing channels of supply, as by installing automatic machines. Besides the drift of cotton manufacturing to the South, of which everyone thinks, and the more recent drift of shoe manufacturing to the West, the chapter on industry shows a prevailing tendency toward geographical decentralizing of production. The proportion of the output of many goods coming from the old headquarters is on the decline. The chapter on agriculture indicates a parallel development in farming. The cotton belt is stretching west, the wheat belt west and northwest; the dairying and the market-garden areas are moving in various directions. Finally, the chapter on marketing shows a concentration of trade in cities and towns at the expense of villages.

Doubtless these changes are to the advantage of those who make them. If they proved unprofitable, they would be abandoned. But it is equally clear that we have here another feature of increasing efficiency which brings losses as well as gains. New England may not lose as much as North Carolina and St. Louis gain from the shifts in the cotton and shoe trades—that is a question of the totals. And New England may devise new ways of using her labor, her capital, her manufacturing sites, and her ingenuity, more profitable than the old—necessity is often the mother of invention. If these efforts succeed, they may create fresh difficulties felt elsewhere. Similar truisms might be recited concerning the other cases in point. But whatever happens in the future, we must not let the dazzle of the high lights blind us to the sectional shadows.

“Technological Unemployment.”—Among all the hardships imposed by increasing efficiency, most publicity has been given to the decline in the number of wage earners employed by factories. That is a matter of the gravest concern in view of the millions of families affected or threatened by the change, and in view of their slender resources. To it special attention has been paid in this investigation.

The new phrase coined to describe what is happening, “technological unemployment,” designates nothing new in the facts, though the numbers affected may be large beyond precedent. Ever since Ricardo shocked his rigid disciples by admitting that the introduction of “labor-saving” machinery may cause a temporary diminution of employment, economists have discussed this problem. Granting Ricardo’s admission, they have nevertheless held that, in the long run, changes in method which heighten

efficiency tend to benefit wage earners. English experience since Ricardo's day seems to bear out this contention. The power looms, which put an end to hand-loom weaving after tragic struggles, have not reduced the number of British workers employed in weaving, or cut their average earnings. The railways, which displaced the old mail coaches and carters, have not reduced the number of transport workers or made them poorer. And the new trades of building and caring for the elaborate modern equipment must not be forgotten. There doubtless are cases in which improvements in methods have caused what promises to be a permanent reduction in the number of persons employed in an industry. By defining industry narrowly, these cases can be made numerous. But the broad result plainly has been that the industrial triumphs of the nineteenth century increased the demand for labor and increased its rewards. "Labor-saving" machinery has turned out to be job-making machinery.

To recall these familiar facts should not diminish by one jot our rating of the hardships suffered by men who are thrown out of jobs. They and their families often undergo severe privation before new employment can be found; the new jobs may pay less than the old or be less suitable; too often the displaced man never finds a new opening. Technical progress is continually made at cost to individuals who have committed no fault and committed no avoidable error of judgment. No organized plan has been evolved for preventing such hardships, aside from the schemes devised by some trade unions for tiding their members over mechanical revolutions in their crafts. The nations have left the remedy to "natural forces;" they have trusted that the expansion of production, which improvements bring about, will presently open new places for the displaced workers.

The problem of what happened in the short period 1922-1927, then, is to find how many wage earners were displaced in that time, how many of the displaced found new jobs promptly, and what these new jobs were. To answer these questions accurately would require far better data than are to be had. There are few branches of statistics in which the United States lags further behind the leaders than in statistics of employment. What we have been able to learn comes to this:

Starting with the 1920 census of occupations and reckoning forward, it is estimated that by 1927 there had been an increase of about 5,100,000 employees 16 years of age and over, who looked to nonagricultural occupations for a living. The figure allows for the fact that some 860,000 persons had left the farms to seek livelihoods elsewhere, and the more than offsetting fact that the number of pupils over 15, enrolled in schools and colleges, had risen by 1,430,000 between 1920 and 1927.

Of the 5,100,000 net additions to nonagricultural job seekers, a few turned to mining and allied occupations; 100,000 entered public services,

over 600,000 engaged in construction work of some sort, nearly a million attached themselves to "transportation and communication," 1,400,000 became mercantile employees, and more than two and a half millions took to miscellaneous occupations in hotels, restaurants, garages, repair shops, moving-picture places, barber shops, hospitals, insurance work, professional offices, and the like. Manufacturing is the only large occupational group, aside from farming, to show a decline. There the number of employees fell from about 11,200,000 in 1920 to about 10,600,000 in 1927—a drop of 600,000. (See Chap. VI, Labor, Section IV.)

All these data are estimates of the net changes in numbers of persons "attached to" the occupations in question. They show that American wage earners met "technological unemployment" in manufacturing mainly by turning to other ways of making a living. The decline from 1920 to 1927 in the number of persons actually at work in manufacturing enterprises is put at 825,000, but the number of *unemployed* among the people who depended on factory work for a living increased only 240,000 between 1920 and 1927, according to the best figures available. If these estimates are approximately correct, then some 585,000 of the workers laid off by factories had taken up other occupations. That is, 71 per cent of the workers displaced had attached themselves to new trades by 1927.

Adopting a new occupation, however, does not guarantee getting a new job. The surplus workers from our farms and factories who hunted for fresh openings increased unemployment in other fields. The expansion of business, particularly the expansion of miscellaneous and mercantile occupations, made places for perhaps four and a half million new wage earners. But the supply of new jobs has not been equal to the number of new workers plus the old workers displaced. Hence there has been a net increase of unemployment, between 1920 and 1927, which exceeds 650,000 people.

The number of the unemployed has varied from year to year with cyclical changes in business activity. It surpassed all previous records in the depression of 1921; it declined rather slowly in the revival of 1922; even in the busy year 1923 it remained higher than in 1920; it rose in the mild recession of 1924, declined on the return of activity in 1925-26, and then mounted again in 1927. The final estimates presented in the chapter on labor may be summarized as follows:

TABLE 8.—ESTIMATED AVERAGE MINIMUM VOLUME OF UNEMPLOYMENT IN THE UNITED STATES, 1920-1927

Year	Nonagricultural wage and salary earners	Average minimum number unemployed	Percentage unemployed
1920.....	27,558,000	1,401,000	5.1
1921.....	27,989,000	4,270,000	15.3
1922.....	28,505,000	3,441,000	12.1
1923.....	29,293,000	1,532,000	5.2
1924.....	30,234,000	2,315,000	7.7
1925.....	30,941,000	1,775,000	5.7
1926.....	31,808,000	1,669,000	5.2
1927.....	32,695,000	2,055,000	6.3

It must be emphasized that these figures are merely the best estimates which it is possible to make from the scattered and imperfect materials available. They are subject to considerable margins of error. They minimize the seriousness of unemployment. Finally, even as minimum figures, these estimates do not profess to show the high points reached by unemployment in bad seasons—they give only yearly averages.

One may wonder at the versatility, initiative and mobility of Americans, as evidenced afresh by their prompt shifting of occupations on so great a scale in recent years. One may wonder also at the rapid expansion of the trades which have absorbed some five million employees in seven years without reducing wage rates. But one must not forget that these shiftings have been compulsory in large measure; men have been forced out of farming and forced out of factories as well as pulled into automobile services, shops and restaurants. And the employment balance is on the unfavorable side. While our economic progress has meant larger per capita earnings for all workers taken together, it has imposed severe suffering upon hundreds of thousands of individuals.

The Domestic Difficulties of Agriculture.—It was noted above that American farming owes part of its difficulties in 1922-1927 to reductions in foreign demand and increases in foreign supply. It must now be added that fresh difficulties have been created for farmers by changes in domestic demand, and by the successful efforts of farmers to increase their own efficiency as producers.

Chapter I shows that, all in all, the standard of living has been rising in the United States of late. But Americans have been eating less food per capita than once they did. The greater diversification of diet has been advantageous to dairymen, market gardeners and fruit growers; but the bulk of farmers have lost more than they have gained from the changes. Americans have also been wearing less clothing than formerly, and that hurts the market for cotton planters and wool growers. Moreover, there has been a shift from cotton and woolen fabrics toward silk and rayon. Finally, the goods on which American families have spent

freely—automobiles and their accessories, gasoline, household furnishings and equipment, radios, travel, amusements and sports—are goods in which little agricultural produce is used.

To make matters harder, the firmness of wage rates in the flourishing industries has forced farmers to pay relatively high wages for such hired labor as they have needed. Taxes on farm property have risen in every year covered by the record. While the prices farmers had to pay for operating supplies and equipment, as well as for consumers' goods, dropped sharply in 1921, they did not drop nearly so much as the prices which farmers received for their products. Fluctuations in the two sets of prices since 1921 have redressed the inequality only in part.²⁶

It is a grave error to think of American farmers as the passive but complaining victims of calamity. Chapter VIII shows that they have exhibited as vigorous a capacity for self-help as any other large section of the community. The qualities which enabled their forerunners to subdue the wilderness reappear in the efforts of the present generation to work a way out of the postwar tangle.

But agriculture is a business of very slow turnover. Agriculture is also an extrahazardous business, which depends for results on averages over a series of harvests. The dislocations it faces at present are partly the result of continuing secular trends, rather than cyclical fluctuations which reverse themselves every few years. And agriculture is a business in which millions of producers are working each on his own account. A concerted policy is exceedingly difficult to organize. What one farmer does to help himself often makes matters harder for other farmers. That is the aspect of the farm problem which requires attention here.

The individual farmer, hard pressed by low prices and high fixed costs, has tried several ways to better his fortunes. One way alleviates the lot of other farmers, whether it turns out well for himself or not. It is to give up farming. Dr. C. J. Galpin estimates that there was a net decrease of farm population amounting to 460,000 persons in 1922, perhaps a larger number in 1923, 182,000 in 1924 when city jobs were harder to get, and 479,000 in 1926. We have already noticed Dr. M. B. Givens' estimate that in 1920–1927 upwards of a million migrants from the farm sought other occupations. So far as reduction in number of workers goes, there is a close parallel between the record of farming and of manufacturing.²⁷

²⁶ See the latest Department of Agriculture indexes in Chapter VIII, p. 548.

²⁷ Commenting upon this passage, Dr. E. G. Nourse suggests that this shrinkage in the number of farm workers seems likely to continue. Agriculture bids fair definitely and permanently to lose numbers as a result of changes in technique. The new branches of farming which are growing up take many less hands than are displaced in the old staple lines. Thus the industry as a whole is giving up workers to other callings.

This considerable shift in population has been accompanied by a much slighter decline in the area of land cultivated. The abandonment of poor farms has unquestionably been accelerated by hard times, though we lack comprehensive data to show on what scale. On the other hand, wide tracts of former waste lands have been reclaimed and wider tracts of former cattle ranges have been brought under the plow. The net outcome of these contrary movements is perhaps best shown by the Department of Agriculture's report of the acreage in 19 principal crops. From 351 million acres in 1919, the area declined unsteadily to 342 millions in 1924, rose above 350 millions in 1926, and then shrank by three-quarters of a million acres in 1927.

But the smaller numbers of workers left on farms, cultivating slightly less land, have increased their output—again paralleling developments in manufacturing. The Department of Agriculture's index showing "mass of crop production" mounted from 100 in 1919—a year of fair harvests—to 102 in 1922, 104 in 1925, and 106 in 1927. If these figures were reduced to a per-capita basis, the rate of increase would be decidedly greater. Of course, every farmer who has enlarged his output has contributed his mite toward keeping down prices. Agricultural depression had forced the individual farmer to meet his narrow margins above cost by raising more units to sell, and selling more units has tended to make these margins narrower still.

Increased productivity per worker in agriculture has been achieved in the same way as increased productivity per worker in manufacturing—by putting more intelligence into the work. For decades, agricultural experiment stations, colleges, state bureaus, farm papers, and the Department of Agriculture in Washington have been actively seeking to learn and to teach better methods of farming. From drainage to the choice of crops, the breeding of stock and the building of fireplaces, scarcely any feature of farming as a technical process, as a business enterprise, or as a way of making a home but has been studied intensively and written up extensively. Slowly the lessons have been learned by an increasing number of farmers and farmers' wives. The pressure of hard times speeded up the application of knowledge to practice, despite the fact that hard times cut down the farmers' ability to accumulate the capital which many of the changes require.

One of the conspicuous changes in methods of farming has reacted most unfavorably upon the demand for farm products. The number of tractors in use on farms is estimated to have increased from 80,000 in January, 1918, to 380,000 in 1922, and 770,000 in January, 1928. This change has been accompanied by a decrease in the number of horses and mules on farms from about 26,400,000 in 1918 and 1919 to 20,100,000 in 1928. An even greater decline was occurring at the same time in the number of horses and mules in cities. A not inconsiderable branch of

animal husbandry thus lost much of its market. What was worse, at least 15 to 18 million acres of hay and grain land lost its market also.

To get a just impression of the versatility farmers have shown in coping with their difficulties, one must turn back to the chapter on agriculture, or even to the books there cited. That with all their courage and ability they have not yet succeeded in regaining their former measure of prosperity, must be ascribed partly to the slowness of agricultural processes themselves, partly to the halting recuperation of Europe and its reactions on other countries, and partly to the fact that increasing efficiency has added to the supply of farm products or cut down the demand.

Agricultural depression has not been confined to the United States. In many other countries, the tillers of the soil have been engaged in a similar struggle with unfavorable conditions of supply and demand. Their efforts to make up for the relatively low prices received for their products by marketing larger quantities, and their compulsory retrenchments of expenditure, have reacted unfavorably upon the fortunes of American farmers, just as the similar actions of American farmers have made conditions harder for them. Round a good part of the globe, the productivity of agriculture has been rising, while in most of the leading industrial nations other branches of production have grown slowly if at all. The effect upon prices in the great world markets has been striking. The demand for agricultural products as a whole is inelastic compared with the demand for many industrial products. That is, a relatively small increase in the current supply of foodstuffs, the great agricultural staple, brings a relatively large decline in market prices. Hence the change in the international balance of agricultural and non-agricultural output has created a difficult situation for farmers, even in the few countries, like the United States, where production in other lines has increased rapidly.

What has been the net effect of all the factors, domestic and foreign, influencing the economic fortunes of American farmers, is hard to ascertain. The preceding chapters on agriculture and on national income present the facts from various angles. That is desirable; for no simple summary of so complicated a situation can be adequate. But perhaps the following figures, which purport to show the changing relations between the average per capita incomes of farmers and of the whole population, are as significant as any which might be chosen.

Though the estimates from which these percentages are drawn (columns 10 and 11 of Table 12 in Chap. XII) are the best results our investigators have been able to get from the available data, they are subject to an uncertain margin of error. That the figures differ in certain respects from what most people, including our investigators themselves, would expect to find is not seriously disturbing; for expecta-

tions in such matters are notoriously biased by cases which have impressed our minds because of their striking character.

TABLE 9.—ESTIMATED PER CAPITA INCOMES OF AMERICAN FARMERS AS PERCENTAGES OF ESTIMATED PER CAPITA INCOMES OF THE TOTAL POPULATION, IN VARIOUS YEARS

Prewar years		Postwar years	
1913.....	39 per cent	1919.....	57 per cent
1914.....	39 per cent	1920.....	46 per cent
		1921.....	34 per cent
		1922.....	35 per cent
		1923.....	36 per cent
		1924.....	37 per cent
		1925.....	39 per cent

On the face of these returns, American farmers gained greatly in relative economic status between the beginning and the end of the war, though, even at their peak, agricultural incomes per capita remained far below the national average. The catastrophic drop from 1919 to 1921 wiped out all of this gain and considerably more. If our estimates are reliable, by 1925 farmers had won back to their prewar position in comparison with average per capita incomes in other occupations, but they were by no means so well off as in 1919-20. Unfortunately, the data for similar computations in years since 1925 are not yet available.

Even if these results be accepted as probably more reliable than general impressions, they do not represent adequately the farmer's relative position in the national economy. In particular, they show nothing of the financial entanglements into which many of the most enterprising American farmers were drawn in the flush years. A man may make as good a current income now as before the war and still be far worse off, if he is carrying a greatly increased load of debts. And quite apart from that, the not unfavorable income comparison which 1925 makes with prewar years is due to the use of shrinking per capita figures for farmers and swelling per capita figures for the total population. An industry which keeps up its per capita quota of the national income because thousands of workers withdraw from it cannot be regarded as flourishing.

VII. THE INTERRELATIONS AMONG ECONOMIC CHANGES

The Factors Already Discussed.—So far, the contrasts noted at the outset of this chapter between the economic fortunes of different income groups, different industries, and different sections of the United States in 1922-1927, have been traced to three factors—or rather to three great complexes of factors. (1) Foreign conditions on the whole have been none too favorable to American business, and they have been eminently

unfavorable to American agriculture. Important branches of industry have enjoyed a large increase in foreign sales; but had Europe been prosperous, American prosperity would have been less "spotty" and more intense.²⁸ (2) Such prosperity as we have enjoyed has been earned by many-sided and strenuous efforts, in which millions of people have shared, to improve our technical methods, our business management, our trade-union policy, and our Government administration. (3) While increasing efficiency has added to real income, it has put pressure, often rising to severe hardship, upon competitors, direct and indirect. The factory hand competing with the "automatic" machine, the horse farmer competing with the tractor farmer, the lumber industry competing with the cement industry, the New England cotton mill competing with the North Carolina cotton mill, the independent retailer competing with the chain store, the clothing trade competing with the makers of automobiles and radios for slices of the consumers' dollars, have had a hard time.

This analysis is not simple, but it is still too schematic. There is no hope of learning and telling the whole story in realistic detail. Yet one further factor of great moment and two sets of "economic reactions" must be introduced before a summing up is attempted.

Retardation in the Growth of Population and Its Effects.—The additional factor to be taken into account concerns population growth. In sketching the main lines of nineteenth-century experience, it was noted that the fruits of the tree of applied knowledge can be consumed in several ways. One way is to increase population as fast as the tree increases its yield. If that course is pushed to the limit, there can be no reduction of working hours and no advance in the standard of living. The latter gains are contingent upon keeping the growth of population slower than the gain in productive efficiency. And before the close of the century the European stock had sensibly reduced its birth rate.

This reduction of birth rates has been going on during our period in most of the states of the Union. The decline seems to be more rapid than the decline in death rates. Moreover, first the war and then legislation restricted immigration. The chapter on labor sums up the results in the following way:

²⁸ Once more the reader is reminded that this summary deals only with broad features. Important details, passed by in silence here, are brought out in the preceding chapters.

	Net immigration into the United States	Average per year
Prewar period		
July 1, 1907-June, 30, 1914.....	4,645,590	663,656
War and early postwar period		
July 1, 1914-June 30, 1921.....	1,253,652	179,093
Quota-restriction period		
July 1, 1921-June 30, 1927.....	1,873,311	312,210

Combined, the birth-rate and death-rate changes and the changes in migration reduced the average annual increase of population from 1,800,000 in 1920-1925 to 1,545,000 in 1925-1928.

The retardation in population growth has affected the whole social situation profoundly in ways which concern the student of sociology and politics quite as deeply as they concern the economist. It will be long before the full effects upon national life become clear. But certain prompt economic consequences must be noted.

At the close of the war, when a fall in the price level like that of 1865 was expected by many, business executives frequently said that the first task of reorganization was to "liquidate labor." The great buying campaign of 1919 and the accompanying uprush of prices caused a postponement of this program. For a time it was hard to get men enough, even at rising rates. When prices fell precipitously in 1920-21 and unemployment was rife, the moment to insist on wage reductions seemed to have come. But the trade unions offered strenuous resistance, despite the number of the temporarily idle. Their resistance was more effective than it could have been had not the growth of population been retarded for some years. The prices of labor were cut, to be sure, but not cut as much as the prices of consumers' goods. Hence, when employment became tolerably full again toward the close of 1922, wage earners found themselves in possession of relatively large purchasing power. Then the economic advantages of a broad consumers' market began to appear. Employers discovered that their inability to "liquidate labor" had been fortunate for themselves, as well as for their employees. The doctrine of high wages found conspicuous champions among the business leaders, and their formulations favored its spread. Discoveries in science, as well as in practical life, have often been made thus by observing the consequences of a thwarted effort.

In most periods of prosperity, wage rates lag somewhat behind living costs on the rise. The indications are that these paradoxical "prosperity losses" to wage earners have not cut much figure during 1922-1927. Wholesale prices have sagged slightly, and living costs have advanced

but little. Though the percentage of unemployment has risen since 1923, wage rates have been firmly maintained on the whole, if not increased somewhat.

This result also must be ascribed in part to the relatively slow increase in the number of job hunters. Had there been no legal check on immigration in 1922-1927, unemployment would have attained large proportions, and the difficulty of maintaining wage rates would have been greater.

Moreover, it seems sound to ascribe a part of the gains in technical efficiency, which have been so characteristic of recent years, to the high price of labor. An employee to whom one pays high wages may represent low labor cost. But if he is to be so efficient as to be cheap, he must be provided with good equipment and aided by good management. More horse power per man and better management per man, to twist Mr. Dennison's flexible phrase, are needed to secure more production per man; and more production must be had per man when more wages are paid per man.

All this discussion on a per capita basis is proper; to make clear how proper, consider the effect of retardation in population growth upon aggregate production and wealth. Had there been no reduction in birth rates and no restriction of immigration, the United States would contain several millions more people than it does. As large or a larger fraction of the greater population would be "engaged in gainful occupations," and, despite more unemployment and a less advanced stage of industrial technique, the workers would probably be producing a greater volume of goods. Thus, the national income would be rising faster than it is; but per capita income would be growing slower than it is. Since birth-rate restriction seems to be voluntary, and since immigration restriction certainly is, we must conclude that Americans are preferring to raise the economic level of average life rather than to maximize national wealth.

Mutually Moderating and Mutually Intensifying Reactions.—The two sets of economic reactions still to be noted may be thought of as the mutually moderating effects of factors opposing each other, and as the mutually intensifying effects of factors working in the same direction.

Like the set of economic reactions already discussed—the pressure exerted on competitors by those who increase their own efficiency—these moderating and intensifying effects arise from the basic feature of economic organization. Though modern society accepts the principle of individual responsibility, each individual gets his money income wholly by serving others, and gets his real income mainly by consuming goods other people have made. Thus everyone depends both on the buying power of other consumers and on the efficiency of other producers. And what is true of every individual is true, *mutatis mutandis*, of every business

enterprise. These intricate relations of interdependence tangle the skein of economic causes and effects beyond the present power of man to unravel. Every development is the net resultant of numerous causes and also the cause of numerous effects. But though we can not disentangle all the crisscrossing influences of the factors which have shaped American fortunes in 1922-1927, we can follow certain of their salient reactions upon each other.

To take first the moderating effects of opposing factors: American prosperity in 1922-1927, in nonagricultural lines, would have been decidedly greater had the six million American farmers been flourishing. Every man thrown out of work has subtracted an iota from the national dividend and an iota from the demand for goods. Every business that has failed has made a tiny difference in our ability to provide for our wants and to market our products. The United States as a whole would have been better off if all foreign countries had enjoyed fortunes equal to its own.

On the other hand, the farmers would have been in far worse plight if the majority of Americans had not been receiving relatively large incomes, and if American factories and railways had not been highly efficient as servants of agriculture. So too, the unemployed would have been more numerous, and their difficulties in getting new jobs greater, had the country suffered from industrial depression. Finally, other countries would have been worse off, had we not been in position to import freely, and to make large loans.

There can be no doubt about the reality or the importance of these reactions of hardship in diminishing prosperity, and of prosperity in diminishing hardship. But there seems to be no way of measuring such complicated influences with the data available.

Clearer still are the effects of one favorable development in reinforcing other favorable developments, and the corresponding intensification of misfortune by misfortune. In this period and in our country, the former set of cumulations has been more in evidence than the latter. And it is necessary to bring these reactions of favorable developments upon each other into the foreground of our final picture. For we cannot understand any single factor in the situation, such as increasing technological efficiency, the rising standard of living, the relatively stable price level, the large volume of construction, the abundance of capital and credit, or large income disbursements, without noting how other factors favored its development.

Take, for example, keener intelligence applied to the day's work, which increased the physical output of goods. That has meant the possibility of larger average real incomes per capita. To distribute these goods, market experts cultivated the desires of the people for a freer and more varied consumption; they developed plans by which the

eager could satisfy wants before they could pay. A sound monetary and banking system provided the requisite currency and credit to run this whole process of producing and distributing a swelling river of goods. Price fluctuations were held within narrow limits by a combination of prudence among business men, unit-cost reductions by technical experts, skill on the part of bankers, and the course of foreign markets. This relative stability of prices reinforced the pressure upon all parties to exercise caution, calculate closely, and watch costs; it also helped to keep world prices relatively stable. Since prices were not buoyant, business enterprises had to maintain a high level of efficiency in order to make profits, and that fact intensified the application of intelligence with which this paragraph started. By the aid of the reinforced efficiency, it has been possible to pay high wages and salaries, meet interest and rental charges, distribute liberal dividends, and still retain large surpluses for protecting or expanding business ventures. The large income disbursements provided the purchasing power to which the market experts appealed for the purchase of the increased physical output of goods. Meanwhile, the considerable profits reaped by the large number of efficient enterprises made them eager to grow. At the same time, prosperous families wanted better housing; prosperous communities wanted larger schools; prosperous states wanted hard-surfaced roads. So the routine business of providing current income was supplemented by an exceptional volume of new construction to provide industrial equipment of all kinds, office buildings, single dwellings, apartments, hotels, theaters, schools and highways. That required capital running into billions of dollars. The demand was met without strain from the surpluses of business enterprises and the savings of individuals whose higher standards of living had not absorbed all of their money incomes. And of course the construction work, as it proceeded, enlarged the market for a vast variety of goods, and enlarged the disbursements of income.

So one might go on indefinitely, tracing the fashion in which each of the prosperity-producing factors in the situation has increased the activity out of which it grew, and thus promoted conditions which heightened its own efficiency. The broad facts, however, are patent. And no elaboration would lead to a convincing evaluation of what credit belongs to any single factor taken by itself. Drop out any of the developments recalled in the preceding paragraph, and the process as a whole would be altered. It is just as impossible to say what high wages, large construction, skillful marketing, railroad efficiency, or abundant credit contributed to prosperity, as it is to say how much agricultural depression, technological unemployment, or the lingering troubles of Europe have diminished the prosperity which might have been attained but for these drawbacks.

Net Effects upon Average Per Capita Income.—Reasons were given above for accepting the estimate of per capita income, expressed in dollars of constant purchasing power, as the most inclusive, and probably the most reliable, summary of the net results flowing from all the myriad changes which affect the economic welfare of the country's people. Accordingly, we return to these figures as the best general conclusion of the whole investigation. Two series of figures are given. The first shows income received in money; the second "disbursed income"—that is, money receipts plus the value of income yielded by homes occupied by their owners and by household goods, the value of farm produce consumed by the producers and minor items of similar nature. The first series corresponds closely to the common conception of income, but the other is a better index of economic welfare. The following comments refer to the second series.²⁹

TABLE 10.—PER CAPITA INCOME IN THE UNITED STATES EXPRESSED IN 1925 DOLLARS

	Income received in money	Disbursed income
1913.....	\$554	\$621
1917.....	579	656
1919.....	510	611
1920.....	520	600
1921.....	500	576
1922.....	557	625
1923.....	616	679
1924.....	628	697
1925.....	647	714
1926.....	659 ^a	733 ^a

^a Preliminary.

From the trough in which the war and the war-dominated cycle of 1919-1921 left the country, Americans raised their average fortunes to the prewar level in a single year of reviving activity. A second year of great gains left the old records far behind. Since 1923, progress has been steady, but less rapid.

Unless these figures are very far in error, not only absolutely but also relatively, the final verdict upon the years 1922-1926, and presumably upon 1927 and 1928, for which the income record is yet incomplete,

²⁹ The difference between income received in money and disbursed income appears to be decreasing rapidly in relation to total income, with some indications of an absolute decrease as well. Presumably this change is explained, in part, by the increasing percentage of the population that lives in rented quarters.—Note by M. C. Rorty, Director.

must be that they brought good times to the majority of our people—though by no means to all.

VIII. BUSINESS CYCLES IN 1921-1927

The Question whether Business Cycles Have Been "Ironed Out."—A final characteristic of the last few years in the United States is the relative stability of business. It is not by oversight that little is said about business cycles in the preceding chapters. In statistical parlance, the conspicuous feature of recent economic changes is the rising trend in output per worker and average income, rather than cyclical fluctuations. The United States has not had a genuine "boom" in business at large since 1919; it has not had a "commercial crisis" since 1920, or a severe depression since 1921. Violent contrasts of economic fortune are found; but they run side by side in different industries. Violent changes in certain activities have occurred from year to year; but they have been localized industrially or geographically, like the rise and collapse of the Florida land speculation. Even the "bull market" on the New York Stock Exchange, which has reached such heights in 1928-29, seems not to have infected business in commodities. For the country as a whole, both current opinions and statistical indexes indicate that production, transportation and distribution have been maintained for the last few years on a high, but not exceedingly high, level, with brief periods of contraction, to which the term "depression" seems scarcely applicable.

This relative stability has encouraged optimists to say that "the business cycle" has been "ironed out" in the United States; that our last cycle ended in 1921, and that we need not fear a serious reaction in the future. The forecast in this statement we may leave for the future to test, reserving our attention to what has already happened.

The validity of the optimistic view depends on the meaning attached to the term "business cycles." If no fluctuation in economic activity be counted a cycle unless it includes a boom, crisis, and severe depression—as these vague terms are commonly understood—then it is true that the United States has had no business cycle since 1919-1921. But on that interpretation, "the business cycle" was "ironed out" in the United States before the war. From 1909 to 1913 the oscillations in general business activity were notably moderate. Nor was that the first stretch of rather uneventful business years either in this country or elsewhere, as Dr. Willard L. Thorp's collection of *Business Annals* shows. However, a discussion of recent changes in business cycles is of little use when conducted in such vague terms. Not unless the amplitudes of successive cycles can be measured and compared, is it possible to reach definite conclusions.

How This Question Can Be Answered.—For some time the National Bureau has been engaged in making such measurements. Though

designed for a larger purpose, they can be applied to the present problem. All the statistical series representing changes in economic activities by months or quarters, for as many years as possible, are being collected for several countries and analyzed on a uniform plan, to find how they behave during business cycles. From these materials we may select the leading American series which cover several prewar cycles, add a few especially significant series covering a briefer period, and arrange the measurements to answer the question in hand.

The first step, in measuring the amplitudes of cyclical fluctuations in statistical series, is to fix a set of "reference dates" marking the beginning, peak, and ending of the general business cycles in each country dealt with. These dates show the year and month of successive cyclical revivals and recessions. They are determined roughly by a study of business annals and made more precise by a study of what statistical data are available from case to case. (2) Each series is then broken into "reference-cycle segments" on the basis of the reference dates. (3) The average value of a series during each reference-cycle segment is computed, and the original data are turned into percentages of these averages as 100. This use of percentages, or relatives, makes it possible to compare the fluctuations of the same series in different cycles and of different series in the same cycle. It eliminates the greater part of the secular trends of the series, but retains what may be called the "intra-cycle trends." (4) The relatives are examined to see whether they show appreciable seasonal variations. If so, the seasonals are determined and eliminated by methods which need not be described. After this step has been taken, a series is in shape to have its cyclical behavior measured in various ways.

The measurements of present concern relate to the amplitude of the rise from the early trough in a cycle to the peak, and of the fall from the peak to the subsequent trough. Such figures are given in Table 12. Though the basic chronology is furnished by the list of reference dates, the low, high, low turning points given in the table are those found in the several series. Most series lead or lag behind the revivals and recessions in general business. To diminish the influence of random fluctuations, we use three-months averages centered, instead of actual standings in the single months when a series touches its peak or trough.

The Duration of Prewar and Postwar Cycles in General Business.—Before examining this table in detail, it is well to see how recent business cycles in the United States compare with their predecessors in respect to duration. Table 11, giving the reference dates used in marking off cycles in general business activity over a period of 73 years, provides the necessary data.

Of course, there is an element of the arbitrary in fixing the beginning and end of these cycles so definitely as the table pretends to do. In

dealing with a single series, one commonly, though not invariably, finds clearly marked cyclical turning points. But in a collection of different series these points never all fall in the same month. Yet some month within the period when most series touch bottom and turn up, or reach the peak and turn down, must be selected as a marker, even though its claim to represent the turn of the general tide may be no better than that of several neighboring months. The uncertainty which month to select is greatest when business continues active or dull on much the same level for a considerable time before it declines or rises. One of the most difficult problems presented by the whole list of reference dates in Table 11 is when to date the recession in the latest cycle covered. November 1926, was finally fixed upon, though almost equally good cases can be made out for several other months ranging from April 1925, when wholesale prices began receding from their peak, to March 1927, when the operating revenues of railroads began to decline. Our practice in such cases is to choose a date as near the end of the nearly level stretch as the data justify.

TABLE 11.—STANDARD REFERENCE DATES FOR BUSINESS CYCLES, UNITED STATES

Expansion			Contraction			Duration in months		
Revival		High	Recession		Low	Ex- pan- sion	Con- trac- tion	Full cycle
January	1855 to June	1857	July	1857 to December	1858	30	18	48
January	1859 to October	1860	November	1860 to June	1861	22	8	30
July	1861 to April	1865	May	1865 to December	1867	46	32	78
January	1868 to June	1869	July	1869 to December	1870	18	18	36
January	1871 to October	1873	November	1873 to March	1879	34	65	99
April	1879 to March	1882	April	1882 to May	1885	36	38	74
June	1885 to March	1887	April	1887 to April	1888	22	13	35
May	1888 to July	1890	August	1890 to May	1891	27	10	37
June	1891 to January	1893	February	1893 to June	1894	20	17	37
July	1894 to December	1895	January	1896 to June	1897	18	18	36
July	1897 to June	1899	July	1899 to December	1900	24	18	42
January	1901 to September	1902	October	1902 to August	1904	21	23	44
September	1904 to May	1907	June	1907 to June	1908	33	13	46
July	1908 to January	1910	February	1910 to January	1912	19	24	43
February	1912 to January	1913	February	1913 to December	1914	12	23	35
January	1915 to August	1918	September	1918 to April	1919	44	8	52
May	1919 to January	1920	February	1920 to September	1921	9	20	29
October	1921 to May	1923	June	1923 to July	1924	20	14	34
August	1924 to October	1926	November	1926 to December	1927	27	14	41
Average duration								
19 cycles, 1855 to 1927,.....						25.4	20.7	46.1
13 cycles, 1885 to 1927,.....						22.8	16.5	39.3

Accepting these decisions, we find certain peculiarities in the duration of recent cycles. (1) The World-War cycle brought a period of activity

exceeded in length only by the expansion phase of the Civil-War cycle. The subsequent contraction lasted only eight months, and is matched in brevity only by the contraction which preceded the Civil War. These two segments produce the longest full cycle the country has experienced in a generation, though it falls far short of three earlier cycles covered by the table. (2) The first postwar cycle was correspondingly brief—29 months as against 52. Its period of expansion was the shortest in the record, less than a third of the full cycle. On the average, the phase of expansion lasts appreciably longer than the phase of contraction. (3) The cycle of 1921–1924 represented a return toward the average duration and the average relations of the two phases. But it still fell five months short of the average for full cycles since 1885—a more representative figure for current experience than the average which includes the Civil War and the prolonged depression of the 1870's. (4) A still closer return to the average appears in the last cycle. The reference dates make it 41 months long, or 1.7 months longer than the preferred average. The prosperous phase is an unusually large fraction of the whole; but, as said above, the date for recession in this case is hard to fix.

So far as durations go, then, business cycles have reverted to type after the aberrations of the war. Of course that historical fact does not justify anyone in counting upon 40-month cycles in the near future, for the table shows that cycle lengths are "subject to change without notice."

Conformity of Different Activities to the Standard Cyclical Pattern.—If business cycles are in process of being "ironed out," as time passes we shall find an increasing number of series which do not undergo cyclical contractions. Twenty series are included in Table 12. How many of them show all the recessions in recent years which Table 11 shows for general business? And what series depart from this standard pattern? The answers may be given in schedule form.

Ten series conform to the standard cyclical pattern throughout the period since 1914.

One series (interest rates on commercial paper) passed through two cycles during the war, but has conformed closely since 1919.

Two series (bank clearings outside of New York City and liabilities of bankrupt concerns) skipped the mild recession at the end of the war, but have conformed closely since 1921.

One series (exports of merchandise) has only three cycles since 1914, instead of the standard number four. But this series did not conform with regularity before the war, presumably because the volume of merchandise which the United States can sell abroad depends more upon business conditions in foreign countries than upon business conditions at home.

Three series (the index number of farm prices of crops, cattle and hog receipts at Chicago) have the standard number of cycles, but the dates of their turning points are erratic. Such is the usual case with agricultural series, for the weather changes which exert such an influence upon farm prices, fodder crops and the marketing of

stock, seldom run a course parallel to general business activity for several years in succession.

Three series skipped the cyclical decline of 1926-27—anthracite coal production, dividend disbursements by industrial corporations, and number of shares sold on the New York Stock Exchange. Hog receipts had turned downward in 1923 and cattle receipts in December, 1924. All the other series in our sample, 15 out of 20, suffered a fall beginning in some month between April 1925 and March 1927.

The test here applied to determine whether the behavior of a given series conforms to the standard cyclical pattern is rather exacting. Unless a series rises within the period labeled expansion in Table 11, and falls within the period labeled contraction, it is set down as failing in conformity. A change in this practice will be called for if the effort to smooth out business cycles succeeds gradually. For in smoothing out these cycles the stage should come when alternating phases of expansion and contraction will be reduced to alternating accelerations and retardations of a rising secular trend. A cycle will remain; but it will be so attenuated that the statistician will have to measure it in varying rates of increase, not in plus and minus items. Even now such measurements are useful. They prove that general business conditions exercise some influence upon processes which skip cyclical declines. If the measurements in Table 12 were made into average rates of change per month, they would show a higher degree of conformity to the standard cyclical pattern than is credited here. But so long as fundamental business factors, like employment, bank clearings, wholesale prices, physical production, new construction, and railroad revenues continue to exhibit actual declines, we have not attained the acceleration-retardation stage. What progress toward that stage can we claim?

The Amplitudes of Prewar, War and Postwar Business Cycles.—A sharp picture of each of the last five cycles in the United States, against a background of prewar experience, can be drawn from the amplitude entries in Table 12. Thirteen of the twenty series cover seven or more prewar cycles, and conform passably in timing to most or to all of the standard reference cycles since 1914.

(1) In the last prewar cycle, February 1912 to December 1914, the amplitude of the rise was relatively slight. Imports and immigration are the only series among the thirteen which rose more than the prewar average.

The contraction promised for a time to have the same gentle character; but it was aggravated by the outbreak of the war in July 1914. Even so, the amplitude of the fall failed to reach the prewar average in seven of the thirteen series. Of course male immigration from the belligerent countries was severely checked by the call to the colors; that is the only series in which the decline was much greater than usual.

All in all, the cycle was exceptionally mild.

(2) In the war cycle, January 1915 to April 1919, the rise exceeded the prewar average, except in anthracite coal shipments, immigration,

TABLE 12.—AMPLITUDE OF THE CYCLICAL FLUCTUATIONS IN LEADING AMERICAN TIME SERIES DURING PREWAR, WAR AND POSTWAR BUSINESS CYCLES
The amplitudes are expressed in percentages of the average value of a series during each business cycle. Seasonal variations are eliminated.

	Dates of cyclical turning points			Standing at cyclical turning points			Amplitudes of cyclical fluctuations		
	First low	High	Last low	First low	High	Last low	Rise	Fall	Rise and fall
<i>Index of General Business.</i>									
American Telephone and Telegraph Company.									
Prewar cycles. Average of 10.....				88.5	110.6	87.2	22.1	23.4	45.5
Last prewar cycle.....	May '11	Jan. '13	Dec. '14	96	109	81	13	28	41
War cycle.....	Jan. '15	Nov. '16	Mar. '19	76	110	86	34	24	58
Postwar cycles.....	Apr. '19	Mar. '20	July '21	98	117	77	19	40	59
	Aug. '21	June '23	July '24	75	117	87	42	30	72
	Aug. '24	Oct. '26	Dec. '27	82	105	92	23	13	36
<i>Index of Industrial Employment.</i>									
Jerome and Bureau of Labor Statistics.									
Prewar cycles. Average of 7.....				89.4	106.3	96.3	16.9	10.0	26.9
Last prewar cycle.....	Jan. '12	Feb. '13	Jan. '15	97	103	95	6	8	14
War cycle.....	Feb. '15	Feb. '17	Feb. '19	84	108	95	24	13	37
Postwar cycles.....	Mar. '19	June '20	Jan. '21	101	116	76	15	40	55
	Feb. '21	June '23	July '24	82	109	91	27	18	45
	Aug. '24	Mar. '26	Jan. '28	94	104	93	10	11	21
Immigration, male.									
Prewar cycles. Average of 14.....				56.7	159.8	62.9	103.1	96.9	200.0
Last prewar cycle.....	Aug. '11	July '13	Feb. '15	64	208	18	144	190	334
War cycle.....	Mar. '15	Sept. '16	Nov. '17	77	168	21	91	147	238
Postwar cycles.....	Dec. '17	Jan. '21	Mar. '22	105	179	26	74	153	227
	Apr. '22	July '23	Aug. '25	28	248	46	220	202	422
	Sept. '25	May '26	June '28	76	121	77	45	44	89
<i>Index of Industrial Production,</i>									
revised. Includes Mining. Standard Statistics Corporation.									
Prewar cycle.....	Jan. '11	May '13	Nov. '14	74	114	74	40	40	80
War cycle.....	Dec. '14	Oct. '16	May '19	59	113	87	54	26	80
Postwar cycles.....	June '19	Mar. '20	Apr. '21	95	119	78	24	41	65
	May '21	May '23	June '24	66	119	91	53	28	81
	July '24	Sept. '26	Dec. '27	79	108	96	29	12	41
Pig iron production. Daily average.									
Prewar cycles. Average of 9.....				59.9	127.4	72.4	67.6	55.0	122.6
Last prewar cycle.....	Aug. '11	Feb. '13	Dec. '14	76	125	63	49	62	111
War cycle.....	Jan. '15	July '18	May '19	48	116	68	68	48	116
Postwar cycles.....	June '19	Mar. '20	July '21	89	140	39	51	101	152
	Aug. '21	June '23	July '24	34	143	69	109	74	183
	Aug. '24	Sept. '26	Dec. '27	63	117	86	54	31	85
Anthracite coal shipments.									
Prewar cycles. Average of 8.....				72.1	126.1	82.5	54.0	43.6	97.6
Last prewar cycle.....	Aug. '09	Aug. '12	Feb. '14	78	124	84	46	40	86
War cycle.....	Mar. '14	July '18	Mar. '19	78	127	67	49	60	109
Postwar cycles.....	Apr. '19	July '20	July '21	98	116	92	48	24	72
	Dec. '21	Dec. '22	Mar. '25	99	139	94	40	45	85
No cyclical decline since 1925.									

TABLE 12.—AMPLITUDE OF THE CYCLICAL FLUCTUATIONS IN LEADING AMERICAN TIME SERIES DURING PREWAR, WAR AND POSTWAR BUSINESS CYCLES
(Continued)

	Dates of cyclical turning points			Standing at cyclical turning points			Amplitudes of cyclical fluctuations		
	First low	High	Last low	First low	High	Last low	Rise	Fall	Rise and fall
Cattle receipts at Chicago.									
Prewar cycles. Average of 15.....				65.1	140.5	78.7	75.4	61.8	137.2
Last prewar cycle.....	July '12	Apr. '13	Nov. '14	95	116	52	21	64	85
War cycle.....	Jan. '15	Sept. '18	Mar. '19	42	148	100	106	48	154
Postwar cycles.....	Apr. '19	Dec. '19	July '21	96	126	75	30	51	81
	Aug. '21	Apr. '23	Nov. '23	76	120	81	44	39	83
	Dec. '23	Dec. '24	Nov. '25	81	115	86	34	27	61
Live hog receipts at Chicago.									
Prewar cycles. Average of 12.....				55.8	144.6	67.4	88.8	77.2	166.0
Last prewar cycle.....	Jan. '13	Sept. '13	Nov. '14	87	141	71	54	70	124
War cycle.....	Dec. '14	Oct. '16	Sept. '17	61	140	59	79	81	160
Postwar cycles.....	Oct. '17	Mar. '18	Apr. '20	57	138	63	81	75	156
	May '20	Aug. '21	Feb. '22	67	124	88	57	36	93
	Mar. '22	July '23	Feb. '27	80	148	69	68	79	147
Wholesale prices. Bureau of Labor Statistics index number for all commodities.									
Prewar cycles. Average of 7.....				94.7	106.4	98.6	11.7	7.8	19.5
Last prewar cycle.....	June '11	Sept. '13	Dec. '14	95	103	98	8	5	13
War cycle.....	Jan. '15	Sept. '18	Feb. '19	63	133	126	70	7	77
Postwar cycles.....	Mar. '19	May '20	Jan. '22	97	124	70	27	54	81
	Feb. '22	Apr. '23	June '24	92	106	96	14	10	24
	July '24	Mar. '25	May '27	96	105	94	9	11	20
Farm price of crops index. Department of Agriculture.									
Prewar cycles. Average of 2.....				89.0	115.5	85.0	26.5	30.5	57.0
Last prewar cycle.....	June '11	June '12	July '13	86	120	83	34	37	71
War cycles.....	Aug. '13	Mar. '15	Sept. '15	82	110	92	28	18	46
	Oct. '15	Mar. '18	July '18	59	143	116	84	27	111
Postwar cycles.....	Aug. '18	June '20	July '21	98	145	47	47	98	145
	Aug. '21	Aug. '25	May '27	83	115	95	32	20	52
Operating revenues of Class I railroads.									
Prewar cycles. Average of 2.....				79	109	94	30	15	45
Last prewar cycle.....	Feb. '12	May '13	Nov. '14	88	109	87	21	22	43
War cycle.....	Dec. '14	Aug. '18	Mar. '19	66	142	118	76	24	100
Postwar cycles.....	Apr. '19	Sept. '20	Jan. '22	81	119	89	38	30	68
	Feb. '22	May '23	Aug. '24	87	116	96	29	20	49
	Sept. '24	Feb. '27	Dec. '27	90	107	90	17	17	34
Bank clearings outside of New York. Daily average.									
Prewar cycles. Average of 10.....				76.8	115.5	94.8	38.7	20.7	59.4
Last prewar cycle.....	May '11	Jan. '13	Nov. '14	88	110	90	22	20	42
War cycle.....	Dec. '14	Sept. '20	May '21	47	157	100	110	58	167
Postwar cycles.....	June '21	May '23	June '24	77	113	105	36	8	44
	July '24	Dec. '25	Jan. '27	81	105	97	24	7	32

TABLE 12.—AMPLITUDE OF THE CYCLICAL FLUCTUATIONS IN LEADING AMERICAN TIME SERIES DURING PREWAR, WAR AND POSTWAR BUSINESS CYCLES
(Continued)

	Dates of cyclical turning points			Standing at cyclical turning points			Amplitudes of cyclical fluctuations		
	First low	High	Last low	First low	High	Last low	Rise	Fall	Rise and fall
Bank clearings in New York City. Daily average:									
Prewar cycles. Average of 16...				67.2	137.6	76.1	70.4	61.6	132.0
Last prewar cycle.....	May '11	Oct. '12	Sept. '14	86	121	64	35	57	92
War cycle.....	Oct. '14	Dec. '16	Mar. '18	37	123	94	86	29	115
Postwar cycles.....	Apr. '18	Mar. '20	Oct. '21	66	120	78	54	42	96
	Nov. '21	Mar. '23	Sept. '23	80	110	86	30	24	54
	Oct. '23	Mar. '26	Nov. '26	83	118	89	35	29	64
Building permits issued, total values. Bradstreet's.									
Prewar cycles. Average of 2...				62	123	75	61	48	109
Last prewar cycle.....	Mar. '11	June '12	Dec. '14	80	124	65	44	59	103
War cycle.....	Jan. '15	July '16	Dec. '18	76	175	34	101	144	245
Postwar cycles.....	Jan. '19	Jan. '20	Dec. '20	17	141	64	125	77	202
	Jan. '21	Feb. '24	July '24	34	157	90	123	67	190
	Aug. '24	Oct. '26	July '27	72	124	79	52	45	97
Total exports of merchandise.									
Prewar cycles. Average of 10...				71.7	129.9	86.6	58.2	43.3	101.5
Last prewar cycle.....	Sept. '08	Nov. '12	Aug. '14	66	139	66	73	73	146
War cycle.....	Sept. '14	June '17	Nov. '17	28	168	106	142	62	204
Postwar cycles.....	Dec. '17	June '19	Dec. '21	75	193	45	118	148	266
	Jan. '22	Mar. '25	Dec. '27	67	120	96	53	24	77
Total imports of merchandise.									
Prewar cycles. Average of 12...				78.3	125.1	84.5	46.7	40.6	87.3
Last prewar cycle.....	May '11	Dec. '13	Jan. '15	78	131	78	53	53	106
War cycle.....	Feb. '15	May '18	June '19	55	144	136	89	8	97
Postwar cycles.....	July '19	July '20	July '21	84	160	53	76	107	183
	Aug. '21	Mar. '23	Aug. '24	74	128	94	54	34	88
	Sept. '24	Jan. '26	Dec. '27	76	115	94	39	16	55
Interest rates on commercial paper. New York City.									
Prewar cycles. Average of 17...				71.7	145.6	71.5	73.9	74.0	147.9
Last prewar cycle.....	Dec. '11	June '13	Mar. '14	71	135	76	64	59	123
War cycles.....	Apr. '14	Sept. '14	Apr. '16	97	155	75	58	80	138
	May '16	Sept. '18	Feb. '19	92	138	114	46	24	70
Postwar cycles.....	Mar. '19	Aug. '20	Aug. '22	75	123	60	48	63	111
	Sept. '22	Nov. '23	Oct. '24	86	111	68	25	43	68
	Nov. '24	Oct. '26	Nov. '27	80	111	97	31	14	45
Dividend payments by industrial corporations.									
Prewar cycles. Average of 3...				54.0	131.0	68.7	77.0	62.3	139.3
Last prewar cycle.....	Jan. '11	Apr. '13	Dec. '14	40	119	71	79	48	127
War cycle.....	Jan. '15	June '17	Aug. '19	52	157	97	105	60	165
Postwar cycles.....	Sept. '19	May '20	June '22	99	112	87	13	25	38
	No cyclical decline since 1922.								

TABLE 12.—AMPLITUDE OF THE CYCLICAL FLUCTUATIONS IN LEADING AMERICAN TIME SERIES DURING PREWAR, WAR AND POSTWAR BUSINESS CYCLES
(Continued)

	Dates of cyclical turning points			Standing at cyclical turning points			Amplitudes of cyclical fluctuations		
	First low	High	Last low	First low	High	Last low	Rise	Fall	Rise and fall
Number of shares sold on the New York Stock Exchange.									
Prewar cycles. Average of 8...				49.8	172.9	44.5	123.1	128.4	251.5
Last prewar cycle.....	May '11	Sept. '11	Dec. '14	69	120	26	51	94	145
War cycle.....	Jan. '15	Nov. '16	Aug. '18	12	211	51	199	160	359
Postwar cycles.....	Sept. '18	July '19	Oct. '21	39	237	53	198	184	382
	Nov. '21	Apr. '22	May '24	65	139	61	74	78	152
	No cyclical decline since 1924.								
	First high	Low	Last high	First high	Low	Last high	Fall	Rise	Fall and rise
Liabilities of business failures.									
Bradstreet's.									
Prewar cycles. Average of 8...				250.9	49.5	268.0	201.4	218.5	419.9
Last prewar cycle.....	Feb. '11	July '11	June '14	105	64	289	41	225	266
War cycle.....	July '14	Jan. '20	Sept. '20	391	37	595	354	538	912
Postwar cycles.....	Oct. '20	May '23	Jan. '24	147	59	146	88	107	195
	Feb. '24	Mar. '25	Mar. '27	175	65	174	110	109	219

which was held at a low level by European restrictions, and commercial-paper rates, which were affected by the establishment of the Federal Reserve System and the huge imports of gold. The index of factory employment scored an exceptional gain. Otherwise the spectacular advances appear in prices and "dollar series." The increases in physical production, while above the average, were less striking.

The decline of 1918-19 exceeded the prewar average in five series, which include the American Telephone and Telegraph Company's *Index of General Business*, factory employment, anthracite shipments, immigration (which does not fit the reference dates well in this cycle), and number of shares sold. In the remaining eight series, the decline was less than usual. As noted above, outside clearings and liabilities of failures show no cyclical contraction at all in 1918-19.

Thus the war cycle was characterized by a prolonged advance to very high levels, particularly marked in prices and dollar values, followed by a brief and moderate reaction.

(3) The first postwar cycle, May 1919 to September 1921, started from a relatively high point, because the preceding contraction had been so moderate. When a fresh expansion began in May 1919, it was not possible to make large percentage gains in many lines. But wholesale

prices, imports, and number of shares sold (the one series which had fallen heavily in 1918-19) surpassed their average prewar rises.

The contraction was violent. Not merely wholesale prices, but also most of the "dollar series," employment, pig iron output, and shares sold fell much more than they had fallen in the average prewar cycle. Less than average declines occurred only in anthracite coal, cattle receipts, commercial-paper rates, and New York clearings. Each of these exceptional cases has a special explanation.

In summary, this cycle presents a subaverage advance from a level left high by the preceding contraction, followed by a crash of values. On the basis of prewar experience, a bank suspension was on the cards. The Federal Reserve System proved its strength by averting that catastrophe.

(4) In the second postwar cycle, October 1921 to July 1924, recovery from the low points touched in 1921 constituted a fair cyclical advance without the attainment of high levels. And not a few industries did have a brief season of exceptional activity in the early months of 1923. In our sample of thirteen series, six rose more than their prewar averages and seven rose less.

The contraction presents a similar picture. Six series fell more than the prewar average, seven fell less. With two exceptions, the series which rose little were the series which fell little and *vice versa*. Anthracite coal had a less than average rise and a more than average fall, while imports had a more than average fall and a less than average rise.

In amplitude as well as in duration, then, the cycle of 1921-1924 marks a return to the familiar type. Before the war it would have ranked as an average case, save that the recession from the peak was attended by less than the usual banking strain.

(5) The latest completed cycle in American business, August 1924 to December 1927, is quite different in character. On the rise, only one series in our list (the American Telephone and Telegraph Company's *Index of General Business*) exceeds its prewar average, and that excess is confined to the decimal column. All the other series which permit the comparison show a subaverage advance.

On the decline two series, industrial employment and wholesale prices, exceed their prewar averages. All the others shrink less than usual or not at all.

Adding together the cyclical rise and the cyclical fall, we find that wholesale prices is the only series with a total swing exceeding its prewar average. That average is 19.5 points. The corresponding figure in 1924-1927 is 20 points.

Compared with prewar averages, then, the cycle which ended in 1927 was a mild affair. It still looks mild, if tried by severer standards. We found the last prewar cycle to have been notably moderate. Yet

only one series in our list (wholesale prices again) had a larger rise and fall in 1924-1927 than in 1912-1914. All the other series in Table 12, which permit the comparison, make the latest cycle even milder than the last cycle before the war.

To find prewar precedents for cyclical fluctuations so slight as those of 1924-1927, we must resort to the cycle-by-cycle record of each series. For more than half of the list, we can find one or more prewar cases when the cyclical decline was smaller than in 1926-27. But Table 13, which presents this comparison, shows that these individual cases are scattered through eight different cycles. For three of the thirteen series, prewar experience, as recorded in statistics, contains no match in mildness for the latest decline. And two more series show no cyclical decline in the last few years.

TABLE 13.—CYCLICAL DECLINES IN THE BUSINESS CYCLE OF 1924-1927 COMPARED WITH THE SMALLEST CYCLICAL DECLINES FOUND IN ANY PREWAR CYCLE COVERED BY THE AVAILABLE STATISTICS

13 American series covering 7 or more prewar cycles, arranged in order of their cyclical declines in 1924-1927.

The amplitudes are stated in percentages of the average value of the series during the cycle referred to.

Title of the series	Number of prewar cycles covered	Amplitude of cyclical decline in 1924-1927	Smallest cyclical decline found in a prewar cycle	
			Amplitude of the decline	Dates
Liability of business failures, Bradstreet's.	8	109	101	1st quarter '90-4th quarter '90
Immigration, male.....	14	44	38	1st quarter '88-2nd quarter '89
Pig iron production.....	9	31	26	Oct. '87-Feb. '88
Bank clearings in New York City.....	16	29	24	July '95-Sept. '96
Exports.....	10	24	21	Dec. '03-Jan. '05
Imports.....	12	16*	21	Aug. '87-Apr. '88
Interest rates on commercial paper....	17	14*	29	Oct. '67-Jun '68
<i>Index of General Business.</i> American Telephone & Telegraph Company....	10	13	8	March '99-Dec. '00
<i>Index of Industrial Employment.</i> Jerome and Bureau of Labor Statistics.	7	11	3	Dec. '00-Apr. '01 and Feb. '10-Dec. '11
Index number of wholesale prices, Bureau of Labor Statistics.	7	11	4	March '00-June '01, Feb. '03-Oct. '04 and Mar. '10-May '11
Bank clearings outside New York City.	10	5 ^a	9	Nov. '99-Sept. '00
Anthracite coal production or shipments.....	8	none	31	March '87-Oct. '87
Number of shares sold on the New York Stock Exchange.....	8	none	68	June '89-March '91

* The cyclical decline in the business cycle of 1924-1927 is less than the smallest cyclical decline in any prewar cycle covered by the record.

The figures presented in Table 12 express most accurately the difference in amplitude between the latest cycle and its predecessors; but a graphic presentation may be added. The charts which follow cover only the most significant series in our sample. They differ from Table 12 in two ways. (1) The cyclical turning dates used in making the charts are those given in Table 11 for cycles in general business, whereas the turning points used in making the tables are those found in each series. One purpose of this shift is to show that the cyclical pattern is not rubbed out of business changes by stretching all the different series analyzed upon a common time scale, regardless of the dates at which they reached their several peaks and troughs. Of course, the apparent amplitudes of the swings are reduced by this method of presentation, for the lowest and highest points in no series coincide precisely with our reference dates for revival and recession. But, though flattened somewhat in every case, the cyclical pattern remains clear. (2) Instead of presenting only the lowest and highest points of a cycle, the charts show also the progress of expansion from the trough to the peak, and of contraction from the peak to the trough. The interval between a revival and the next recession is divided into three parts as nearly equal as may be, and an average of the relatives is made for each third. The interval between the recession and the next revival is subdivided in the same way. Thus the cyclical behavior of a series is represented in each cycle by eight observations—its average standing in the three months centering on the revival date, its average standing in successive thirds of the phase of expansion, its average standing in the three months centering on the recession date, and its average standing in successive thirds of the phase of contraction. A ninth observation, the average standing in the three months centering on the next revival, is added to show how cycles link into their successors.

These charts confirm pictorially the mildness of the latest cycle in comparison with prewar averages. In some cases, however, rather close scrutiny is necessary to establish the difference. Of course the tables offer more precise comparisons, and when one is interested in the movements of any single series, the use of its own highest and lowest points is the proper procedure. But the charts make plainer than the tables the prevalence of a cyclical pattern in business changes, as well as the difference in this pattern from one type of transactions to another. For example, the contrast between the conforming cycles of imports and the nonconforming cycles of exports stands out clearly. So also does the relation between the pattern for number of shares sold on the Stock Exchange and the pattern for New York clearings. But charts speak well enough for themselves.

While the evidence which has been presented in this rather technical section is not exhaustive, it covers such a variety of economic factors, and such important ones, as to justify a conclusion. Business cycles

AVERAGE BEHAVIOR OF VARIOUS ECONOMIC SERIES DURING PREWAR BUSINESS CYCLES AND THEIR BEHAVIOR DURING THE CYCLE OF 1924-1927

The curves connect averages of relatives (based upon the average value of the series charted in each cycle) during nine stages of the cycles in general business marked off by the standard set of reference dates shown in Table 11. These stages are as follows: 3 months centered on the reference date for revival; successive thirds of the period of expansion; 3 months centered on the reference dates for recession; successive thirds of the period of contraction, and 3 months centered on the reference date for the next revival. The upper time scales show the average intervals from the center of one of these stages to the next during prewar cycles. The lower time scale shows the corresponding intervals in the cycle of 1924-1927.

CHART 7.—INDEX OF GENERAL BUSINESS ACTIVITY, AMERICAN TELEPHONE AND TELEGRAPH COMPANY.

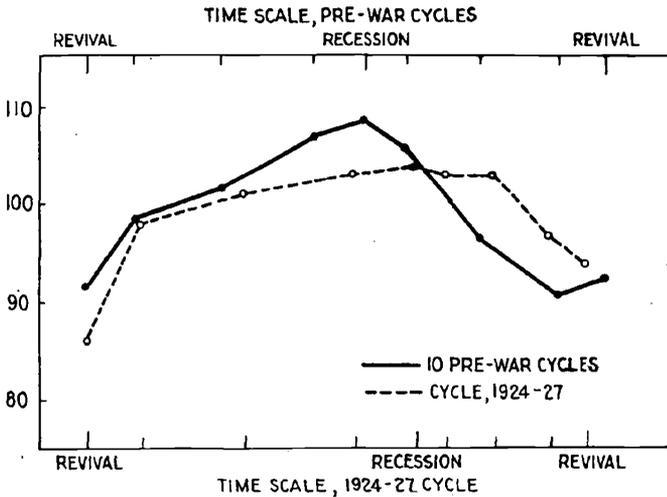


CHART 8.—INDEX OF FACTORY EMPLOYMENT, JEROME AND BUREAU OF LABOR STATISTICS.

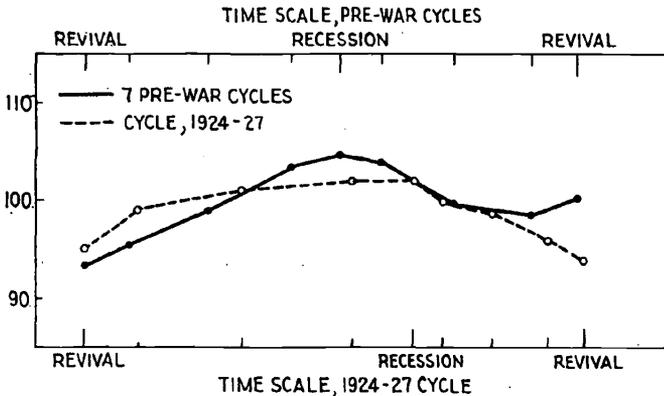


CHART 9.—PIG IRON PRODUCTION.

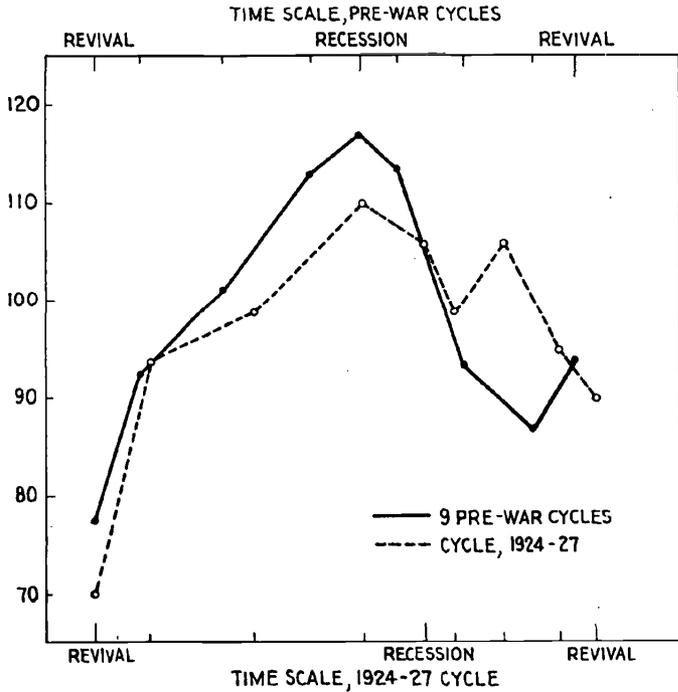


CHART 10.—WHOLESALE PRICES, ALL COMMODITIES, UNITED STATES
BUREAU OF LABOR STATISTICS.

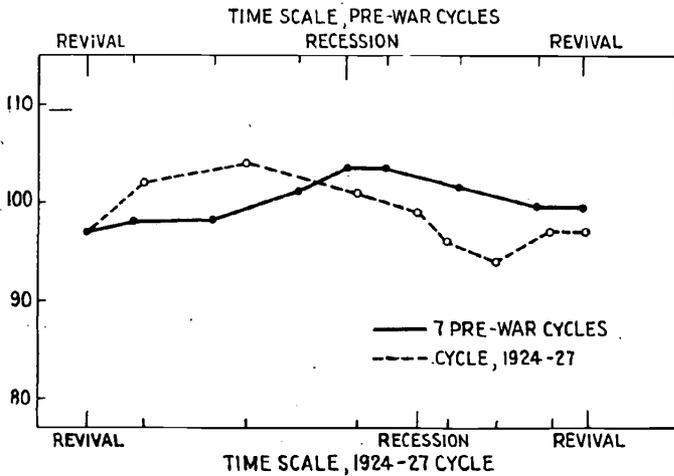


CHART 11.—BANK CLEARINGS OUTSIDE OF NEW YORK CITY.

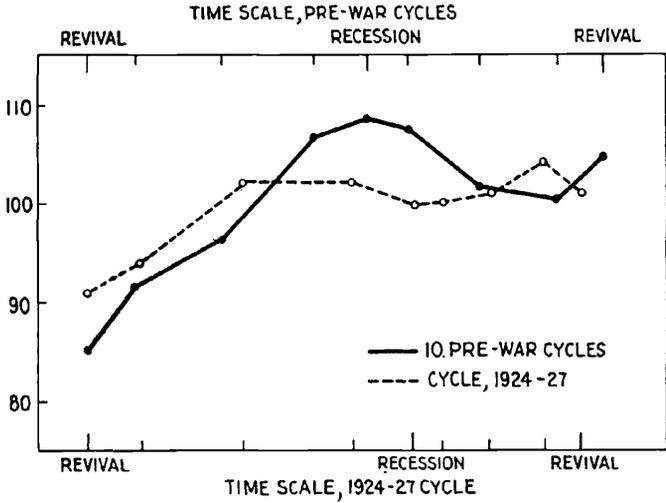


CHART 12.—BANK CLEARINGS IN NEW YORK CITY.

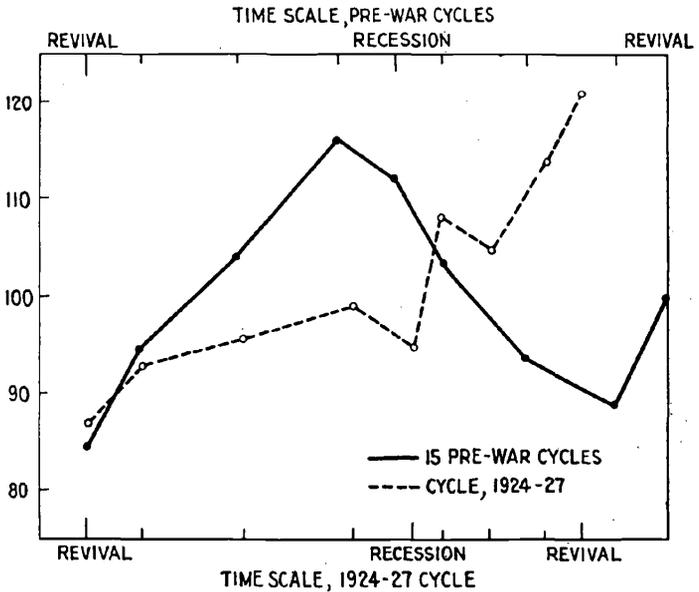


CHART 13.—TOTAL EXPORTS.

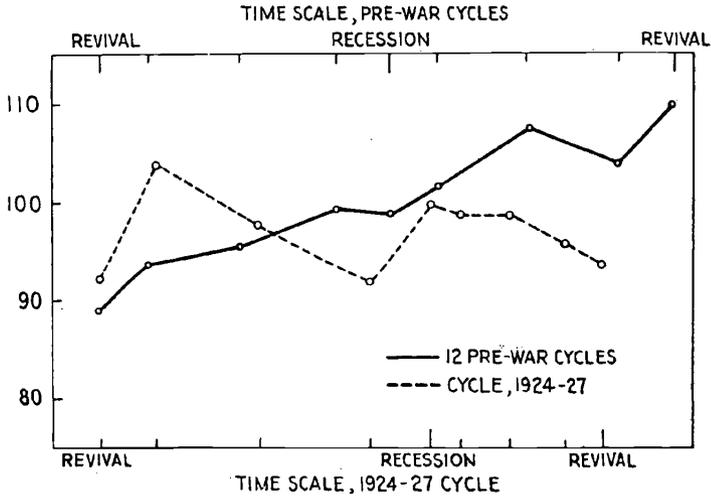


CHART 14.—TOTAL IMPORTS.

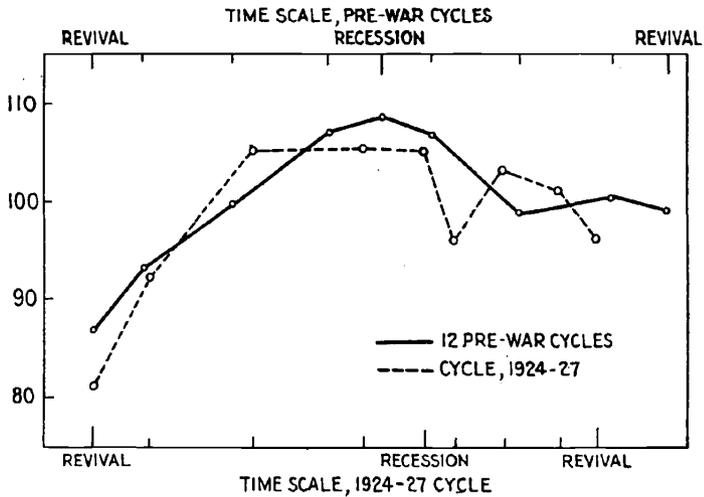


CHART 16.—COMMERCIAL PAPER RATES, NEW YORK CITY.

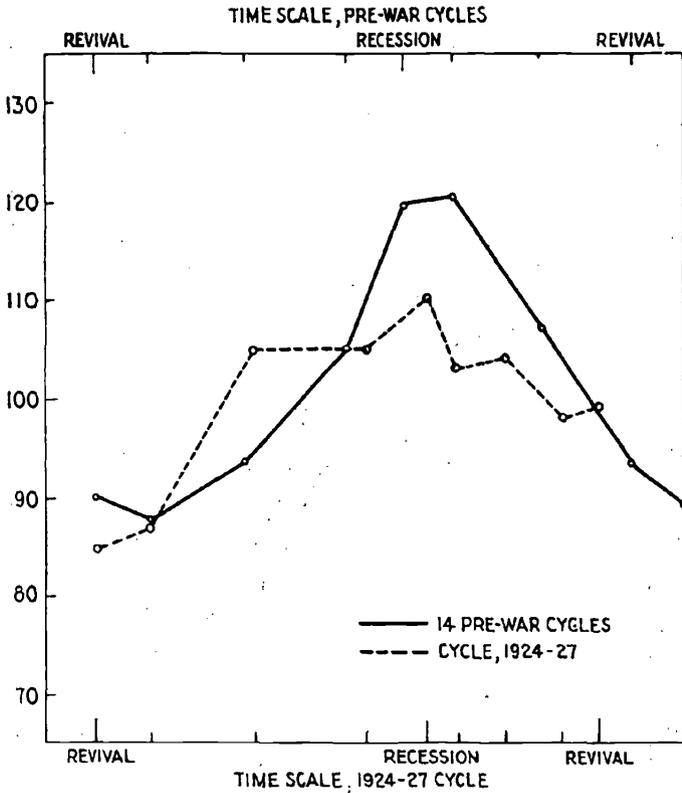
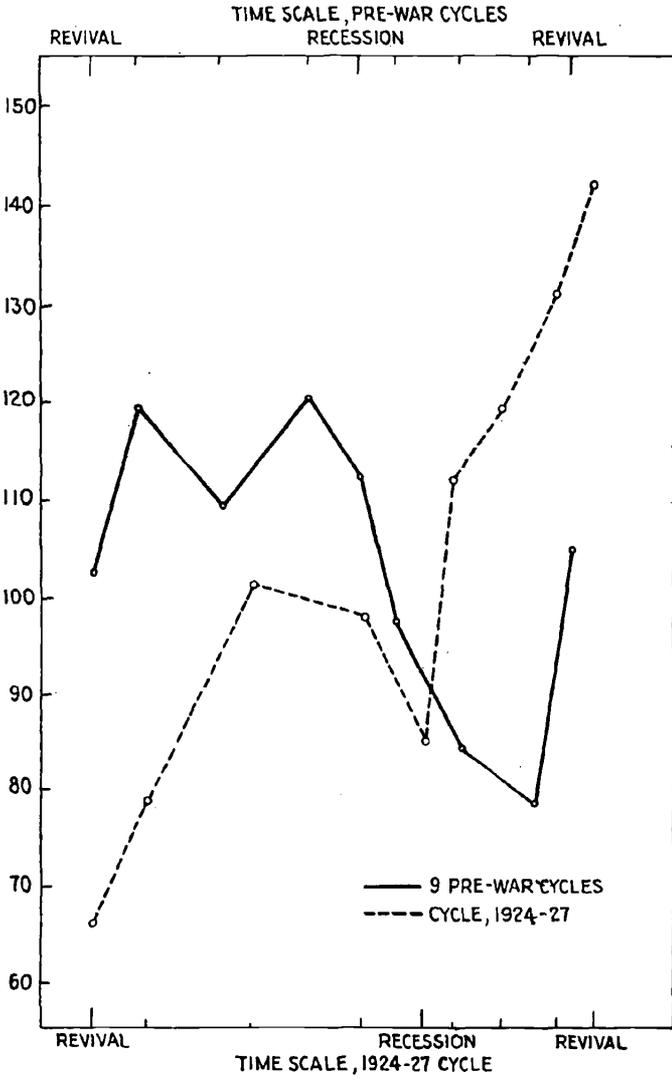


CHART 17.—NUMBER OF SHARES SOLD, NEW YORK STOCK EXCHANGE.



have not been "ironed out" in the United States. But to the recent economic changes described in the preceding chapters we may add another accomplishment: the amplitude of cyclical fluctuations has been reduced. This reduction dates only from 1924, but it extends beyond 1927. With the significant exception of stock-market dealings and closely related processes, the latest statistics indicate that the expansion which began in January, 1928, was proceeding at a temperate pace when this report went to press in March, 1929. Of course, that is no proof that moderation will characterize the later stages of the current cycle or its successors. For we can ascribe the mildness of recent fluctuations only in part to intelligent management. Every factor which has restrained prosperity has had its share in preventing the development of an unhealthy boom, and so in guarding against a violent relapse. If and when Europe regains its prewar level of prosperity, world prices rise, and American agriculture works out of its troubles, then our skill in controlling business cycles will be put to a severer test.

IX. HOW MATTERS STAND IN THE SPRING OF 1929

Forecasting the future is no part of the present task. But we should not close the record without noting that recent developments may appear less satisfactory in retrospect than they appear at present.

Even on the face of affairs, all is not well. Americans have seen more uniformly fortunate times: for example, in 1906, when the Secretary of the Treasury was praying that the country might be delivered from more prosperity. The condition of agriculture, the volume of unemployment, the textile trades, coal mining, the leather industries, present grave problems not only to the people immediately concerned, but also to their fellow citizens. How rapidly these conditions will mend, we do not know. Some may grow worse.

Nor can we be sure that the industries now prosperous will prolong indefinitely their recent record of stability. That we have not had a serious crisis since 1920 or a severe depression since 1921 is no guarantee that we shall be equally prudent, skillful and fortunate in the years to come. If we are to maintain business prosperity, we must continue to earn it month after month and year after year by intelligent effort. The incomes disbursed to consumers, and to wage earners in particular, must be increased on a scale sufficient to pay for the swelling volume of consumers' goods sent to market. The credit structure must be kept in due adjustment to the earnings of business enterprises. Security price must not outrun prospective profits capitalized at the going rate of interest. Commodity stocks must be held in line with current sales. Overcommitments of all sorts must be avoided. The building of new industrial equipment must not be overrapid. These and the similar matters which might be mentioned present delicate problems of management which

will find their practical solutions in the daily decisions of business executives. Perhaps errors are being kept within the limits of tolerance. Perhaps no serious setback will occur for years to come. But we are leaving 1921 well behind us, and there are signs that the caution inspired by that disastrous year is wearing thin.

Whether the recent rate of progress in the arts of industry and business can be maintained is another uncertainty. Past experience, as summed up in the introductory chapter, suggests that the pace will slacken presently, and that years may pass before we see such another well-maintained advance. But that is a matter in which experience is not a trustworthy guide. Scientific research, industrial invention and business pioneering all lead into the unknown. They are fascinating ventures which energetic minds will ever be trying, whether the tangible rewards prove great or small. All that is certain is that whatever progress in efficiency we continue to make must be won by the same type of bold and intelligent work that has earned our recent successes.