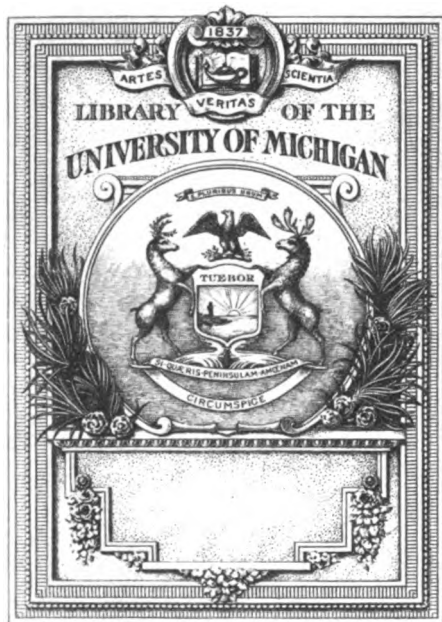


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WEALTH AND INCOME OF THE AMERICAN PEOPLE

**A Survey of the Economic Consequences
of the War**

By
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Second Edition

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PREFACE TO SECOND EDITION

In bringing out the second edition of this work I have taken advantage of the opportunity to correct some typographical errors that occurred in the first, which fortunately were generally of an obvious nature, and also to amend some oversights and clarify some obscurities. To a few important tables I have added later data. The original chapters of the book having been written from the standpoint of 1921 I have thought it best to leave them as originally presented, save for the corrections above mentioned, although if rewriting entirely in the light of later views, I should express myself differently with respect to some matters (for example, as to the outlook for the automobile industry). I have added three new chapters and any inconsistency between them and the earlier ones will be explained in this way. I have also added another appendix setting forth how later knowledge compares with original representations, or amplifies them.

The new edition affords me also the opportunity to correct some misunderstandings that have appeared in reviews of the first edition. It was not my purpose to refute the quantity theory of money, which I leave to more competent hands, but merely to state my non-acceptance thereof, which was necessary in order to make clear the basis of some of my computations. No less an authority than the Harvard University Committee on Economic Research has recently expressed the opinion that prices will run high for the next 10

years at least, an opinion founded on increasing gold supply, which of course means belief in the quantity theory of money in its baldest terms.

If this were going to be so, we should express valuations in present terms, not in those of 1913 and should write up the national wealth materially. In fact there is a good deal of confusion about this, which is a matter of practical concern. Popular opinion does not permit any writing up in the valuation of the railways of the country, but there is a strong tendency toward writing up the valuation of real estate for taxation purposes.

In my own estimates of the national wealth I plead guilty to charges of inconsistency. Absolute uniformity was impossible. In attempting such an estimate the best that can be done is to formulate a principle and conform to it as nearly as the means permit. I think that this is adequately explained in my original text.

Irrespective of whether the value of property be influenced by inflation or by temporary scarcity or superfluity the subject must be taken into careful consideration in an engineering valuation, which from this standpoint is bound to differ from a non-discriminating statistical summary such as a census enumeration. Many companies capitalized new plant in 1920 at actual costs which have subsequently proved to be excessive and unrealizable. There are industrial companies possessing physical assets almost as wide in variety as those of the national assets. The engineer is constantly called upon to make such valuations and broadly he employs the methods that I have done in this book. Industrial companies not uncommonly possess assets to the aggregate of 25 to 30 million dol-

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lars. The total of the national assets is more or less the same thing multiplied by 10,000.

Some fault has been found with my discussions of social and political questions, as being out of place, following my engineering study, so to speak. But in truth a survey of wealth and income is naturally accompanied by a consideration of the causes that have affected them and are expected to continue to do so.

WALTER RENTON INGALLS.

115 BROADWAY, NEW YORK,
April, 30, 1923.

PREFACE TO FIRST EDITION

Estimations of the wealth and income of the American people have been made in the past but occasionally and have not been very satisfactorily done. On the subject of the national wealth about the only information is what has been comprised in census reports, the most recent of which is "Estimated Valuation of National Wealth, 1850-1912" published in 1915. Dr. W. I. King in his noteworthy treatise on "The Wealth and Income of the People of the United States" went extensively into the subject of the national income and its division. He was a pioneer in this field. He did not, however, essay any independent enumeration of the national wealth.

In a monograph published in the *Annalist*, Sept. 13, 20, and 27, 1920, I presented the results of a study of the national wealth and income as of 1916, comparing my estimate of the wealth in that year with the census estimate for 1912, at the same time expressing doubt as to the validity of some of the census figures. Since then the National Bureau of Economic Research was organized for the purpose of the impartial study of economic conditions. The directors of that organization selected for its first subject of research the amount and division of the national income over a series of recent years. The results of this study, which are soon to be published, are in close agreement with my own as to the year 1916.

In my monograph in the *Annalist* I explained that its study was instituted with the intention of showing

the amount of the annual income of the American people, its division between what are commonly classed as capital and labor, and its further division among the classes of labor. It proved impossible for me to carry out that ambitious plan in its entirety owing to the absence of essential data. It is fortunate that this work was taken up and brought to a more satisfactory conclusion by the National Bureau of Economic Research.

I mentioned further that Dr. Arthur L. Bowley had published a similar analysis of the national income of Great Britain before the war. Although he made a far better study for British conditions than I was able to do for American, he encountered similar difficulties, and remarked that "material for such a task is of that uncoördinated, incomplete and sporadic nature which is familiar to all those who have tried to obtain general results from official statistics."

The same fault may be found with respect to American official statistics. It is not satisfactory that out of the great mass of statistics that are collected and published in Washington there is nothing given for what ought to be a fundamental figure, namely, the amount of the total national income, nor even sufficient data to permit that figure to be deduced. The same lack of data is troublesome in making a study of the national wealth.

In the greatest economic disturbance of the world's affairs that there has been since the Thirty Years' War, and possibly that there has ever been, nothing but imperfect statistical information respecting the wealth and income and earning capacity of the countries of the world exists. John Maynard Keynes in his book on the "Economic Consequences of the Peace," the most

important economic production reviewing the consequences of the war to Europe, and we may say to the world, shows that the conference in Paris did not possess adequate information (and for that matter did not pay proper attention to what it had).

The National Bureau of Economic Research has confined itself to the subject of income and the division thereof. I was led to revert to my original study by the inquiry as to what effect the war and the years immediately following had had upon the national wealth. Was it true that the United States had become rich as a result of the war, which was the common belief? Or was it true that our national wealth had become impaired by virtue of the economic waste although we had escaped the physical ravages of warfare? An answer to these questions could be given intelligently only after making an examination of the positions before and after the war and making comparisons. In undertaking such an examination, which is the main subject of this work, I found it necessary to make extensive revision of my previous valuation for 1916. That this was found necessary is not surprising, considering that the research is in what is almost a new field of quantitative economics.

In offering the present work I do not feel that I have said the last word on the subject, either in whole or in detail. Many of my figures, conclusions and opinions will be criticized, and often rightfully no doubt. I consider, however, that the work will be a useful contribution in two principal ways: Firstly, it will give a fair idea of how things approximately stand with us and will tend to promote clear thinking. Secondly, it will probably inspire others to examine with greater

care and with more detail many of the subjects that I have touched upon, but have left in a shadowy state owing to inability to obtain fuller knowledge about them, or possibly failure to understand even that which was available.

An underlying thought in my work in this book is a repudiation of the quantitative theory of money. If that theory were sound, if the inflation of currency were the cause of high prices, there would be reason to expect the continuance of a high level of prices for a long time to come, and there would be good grounds for a writing-up of values rather than a writing-down to the basis of 1913. The economic events since 1913, however, have done more to disprove the quantitative theory than anything else in the controversy of 300 years and the working of things under the Federal Reserve Act in the United States have afforded a visible demonstration of the hoary fallacy.

The mechanism of expansion and contraction under the Federal Reserve system was concisely described in the monthly review of the Federal Reserve Bank, Sept. 1, 1921, in the following words: "The extent to which the Reserve system's power of expansion is availed of varies, of course, with the credit needs and conditions of the country; growing when demands are great and diminishing when demands subside. Expansion and contraction of reserve credits are therefore the *result* of the increasing or decreasing demands of member banks, rather than a *cause* of the increase or decrease in the amount of loans made by member banks to their customers."

Before concluding this lengthy preface I am bound to make acknowledgments to many friends who have

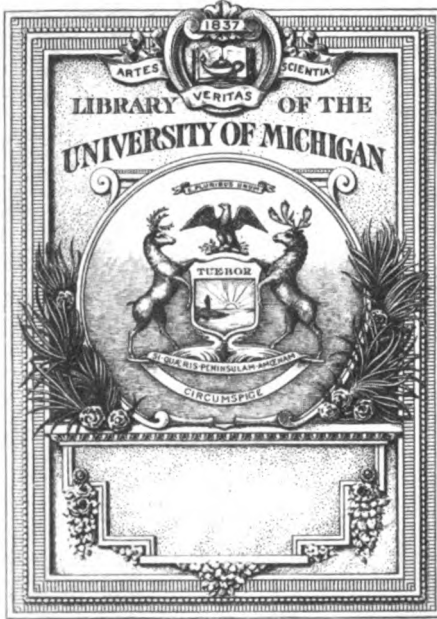
assisted me in this work. The subjects upon which I have touched are of a scope that is far beyond the possibility of expert knowledge by any one man. What I have been able to accomplish, such as it is, would have been impracticable without the coöperation of a good many men. I owe special thanks to Dr. B. M. Anderson, Jr., economist of the Chase National Bank, Messrs. Raleigh S. Rife, economist, and J. Christy Bell, of the Guaranty Trust Co., Mr. L. F. Loree, president of the Delaware & Hudson Railway, to the statisticians and other officials of a large number of the great industrial companies, and to the officers of many of the bureaus of the Government in Washington, especially in the Departments of Agriculture, Commerce and the Interior, and the Interstate Commerce Commission and the U. S. Shipping Board. My friends, Dr. George Otis Smith, director of the Geological Survey and Mr. W. M. Steuart, director of the Census, were particularly helpful in their generous responses to my appeals for assistance.

I am under obligation also to Dr. W. I. King for valuable aid in my research work and for helpful criticisms following his reading of portions of the manuscript.

I am especially indebted to my friend, Dr. Oswald Knauth, secretary of the National Bureau of Economic Research. In many conferences respecting this work, from its very conception, he was ever helpful in inspiration and discussion, and upon its completion he did me the favor to read the whole manuscript and aided me with many valuable criticisms and suggestions.

WALTER RENTON INGALLS.

115 BROADWAY,
NEW YORK.
December 30, 1921.



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WEALTH AND INCOME OF THE AMERICAN PEOPLE

CHAPTER I INTRODUCTION

The paramount subject of concern at the present time is the readjustment in economic conditions following the cataclysmic disturbance produced by the war and the misconceptions leading to an orgy of extravagance that prevailed during two years following the armistice. How long is the world, how long is the United States going to be in effecting the inevitable readjustment? That is the question that no one can answer, but this much may be said—the longer and more painful will be the readjustment the less we know of what has happened to us. The more we know of the facts and the intelligence with which we face them the better able shall we be to conduct ourselves. This ought to be self-evident. Otherwise we shall build hopes and expectations upon political maneuvers and events, only to find in the end that they were folly. In the meanwhile fundamental economic influences will continue to exert their steady and irresistible pressure. The administration at Washington has no magic wand with which to kindle the fires in our idle steel furnaces, or create a million new houses for the

people; nor can the premiers of Europe put into motion the spindles of the cotton and woolen mills, or by any incantations compel the people of the Orient to buy goods. The people of the Orient, and of Europe, and of the two Americas are in the grip of the same economic forces. In brief, the world became poorer by the war, poorer in property, and poorer in morale of the people. This is the basic economic condition that determines everything else. All other conditions are purely collateral or consequential, and the direction of attention upon any one of them alone prevents a correct view of the whole picture from being obtained.

I am not alone in the entertainment of such views. In a lecture to the Institute of Politics at Williamstown, Aug. 25, 1921, Prof. Achille Viallate, of Paris, said with extraordinary lucidity and brevity:

“The whole world is now passing through an economic crisis such as we have never before seen, a crisis that reminds us of the close economic solidarity which now links the nations together, and forces us to realize that we can come back to pre-war prosperity only through mutual help and an economic and political policy deeply grounded in common sense.

“As a result of the war great empires have collapsed, wealthy nations have lost their supremacy in the economic and political world, and their places have been taken by other nations.

“The impoverishment of the impoverished nations is worse than it appears. The enrichment of others is, in great part, only an appearance. They have been enriched not effectively, but only potentially. They are not only unable to recover quickly their loans, but are also unable to dispose of their excess of goods,

because of the poverty of their customers. The fact is that the whole civilized world—victors, vanquished, and neutrals—is impoverished. Millions of men who would have been producers and consumers have been killed or maimed for life.

“The most important consequence of the war must, therefore, be an inevitable reduction for all the nations, during a period, of their people’s standard of living, perhaps even below the pre-war standard. We are under the necessity of making savings out of our present production, in order to compensate for the assets consumed without replacement during the war.”

This is a logical expression, in broad terms, of the economic consequences of the war. It is irrefutable except by the assumption of an offsetting condition, *viz.*, improvement in efficiency. I shall show that that condition did not develop and does not yet exist. In the meanwhile the great majority of our citizens do not know the facts, do not understand them if they do know them, or if they both know and understand them are unwilling to face them. Close to the root of our troubles at the present time lies the desire to escape toil, and at the same time to consume lavishly, two mutually destructive ideals, the pursuit of which has already brought one nation to chaos, and bids fair to involve others. The idea that labor can maintain a more exalted living-scale upon a reduced labor-scale is a fallacy—although for political motives it has been preached loudly to credulous ears.

I read recently in one of the oldest and most reputable of the commercial papers of the United States the following prognostication, which exemplifies the misconceptions that exist in minds of superior intelligence.

“Pre-war prices are not to be expected. All through the war it was pointed out how one result would be a new scale of living for the world; that what were the luxuries of the masses had become the necessities. A difficulty has always existed in attempting to give a quantitative measure of what the new basis must be. All that is definite is that it must be the foundation for further normal progress.”

The same thought finds expression in the present cry of the labor leaders that “Wages may not be permitted to come down; for any thing less than the scale of 1920 does not permit a decent standard of living.” Thus Samuel Gompers in an interview at Atlantic City, August 21, 1921, said:

“Certainly we are going to fight to our utmost the reduction of wages. Every one knows that the cost of living has been lowered but little and the ‘cost of living’ as regarded by capital is too cruel. The workman must not be put on the same stratum as the lower animals. The workman needs a wage that insures something more than enough barely to exist. The workman needs some of the worthwhile things of life, some of the little luxuries and the finer things of life, and we are going to fight to see that he gets more than a bare existence.”

Now, no one will dissent from the idea that the scale of living should be elevated to the highest possible plane and should be kept there if conditions permit. Who but a misanthrope could have any different desire? But if the production of the country be insufficient to afford to all the people what is deemed to be a proper kind of living, in what way is the desire—no matter how laudable—to be fulfilled? The requirement of the

family for the maintenance of the proper kind of living has been variously estimated at from \$2,000 to \$2,500 per annum. Plausible budgets in support of such figures have been presented. I showed, however, in a recent paper that the gross income of the American people in 1916 was about 45 billion dollars, and that there was about 23 billion dollars available for division among the 27 million non-agricultural workers, affording an average of \$855 per worker. My estimate of the national income in that year has been checked by an independent investigation by an impartial economic body. Confirmation of my estimate as to the amount divisible among the workers follows practically as a matter of course. It will be reported that the national income of the American people is not sufficient to afford to everybody even a decent living. What is to be said about this inexorable fact?

Let me return to the great fallacy. "All through the war it was pointed out how one result would be a new scale of living for the world," meaning a higher scale. This was iterated and reiterated and we still hear its echoes. "Man is born free and is everywhere in chains," the opening words of a celebrated work of Rousseau, was a misconception, inflaming the passions of men, that has misdirected the actions of vast multitudes of men ever since. The notion of a higher scale of living to result from the war was of a similar order. How could there be any such result? If there could be, would it not follow that a great war would be desirable every now and then? A preposterous idea!

There can be only one germ of sanity in this fallacy. Many fallacies are wrapped around some germ of sanity, which becomes lost or obscured in the convolu-

tions. In this case the core was undoubtedly the idea that under the stress of unparalleled incentive the directing mind of industry would so improve organization, would so invent new methods of doing things, and would so increase efficiency in production and distribution that the losses of the war would be outweighed and the people as a whole would benefit out of the net result. The whole idea of a higher scale of living reflected basically not the thought that the masses were put in a position to claim that from which they had thitherto been unfairly deprived; but rather the idea that talent, to which the uplift of the masses has been solely due throughout the ages, would be stimulated to accomplish something more, something super-normal and something very quickly, and that the masses would seize it immediately.

But, let us look at the facts.. The Great War was not only destructive, but also it was, broadly speaking, sterile. There was no exhibition of surpassing military genius. There was no lasting uplift in the minds of the people. On the contrary there was deterioration in morale, and also in morals. Of invention in military machinery and methods there was much; in industrial machinery and methods there was some, but on the whole it was disappointing. In the great industries with which I am especially familiar, namely, copper, lead and zinc, I can not think of any major improvements that had not already been instituted before the war. Let us consider the railway transportation industry of the country, a major industry that employs about 5 per cent of all the workers. When the government took over the railways we had bright visions of the economy that might be effected by their operation

under a single management, eliminating the wastes of long-hauling, roundabout-hauling, cross-hauling, etc. but instead of such economy we saw within a year or two that about 2,300,000 men were being required to perform substantially the same service that was previously rendered by about 1,800,000.

Speaking generally, and in the broadest terms, I think that it is probable that the result of the war was impairment in the world's ability to produce rather than improvement. If that be so, and most of the evidence supports the idea, there was not even the germ of rationality in the expectation that a result of the war would be a new and higher scale of living for the world. The higher scale of living that has been temporarily enjoyed by a good many people has been at the expense of their principal, as a whole. An individual can temporarily live luxuriously by mortgaging his property and lavishing the proceeds on consumption goods. But after the proceeds have been spent, what then? There can be no doubt respecting the impoverishment of Europe in capital goods as a result of the war. There has been an impoverishment also in the United States, but not so much as in Europe. Our agricultural lands have deteriorated in fertility since 1916. Our buildings have depreciated by more than the amount of new construction. Our railways have run down physically and our highways have worn out. Our mines have been depleted and our stocks of goods have shrunk. Dr. B. M. Anderson, economist of the Chase National Bank, in a recent contribution said the following:

“The physical condition of our capital equipment probably deteriorated very substantially in 1919.

The condition of the railroads grew worse; public utilities, including traction lines, deteriorated. The housing shortage increased and grew acute. Building costs were so high, and capital was so scarce, that it was virtually impossible to get mortgage money in anything like adequate volume, even had building promoters been willing to trust the prevailing high prices. Agricultural capital in terms of fences, barns and the like appears to have deteriorated during 1919, and soil fertility was inadequately maintained. We were living on capital, using up past accumulations instead of increasing our long-time wealth and resources. This maladjustment of our industries, the undue producing of goods for immediate use instead of producing goods for further production was one of the most ominous signs that could be pointed to in 1919 and early 1920. It was world-wide."

Obviously the world can not become poorer and be happy or prosperous by virtue of it. There is not in this any foundation for dreams of prosperity or vociferations for a higher scale of living. Nor are the facts that we are short of houses and railways, and that we ought to electrify ourselves far more for the sake of economy, any ground for belief that we are going to have activity in business in supplying the needs. Anybody may need things urgently and yet not be able to have them if he can not pay for them. Nor are we to draw any too great comfort from the thought that the United States has not become so impoverished as Europe. If there be any economic fact that has been made clear by the war it is the closeness with which our affairs are intertwined with those of Europe. Europe's poverty must necessarily react upon us.

The United States will be confronted for many years by competition resulting from the obligations that have been imposed upon the people in Europe. This will mean lower wages, lower production costs, and lower prices for goods in Europe—prices lower than even before the war. We shall face this with an impairment in our own position tending in the same direction. On the other hand Europe's poverty will contract the outlet for our export goods. To meet Europe's competition and maintain our scale of living at even the pre-war scale the United States must improve its industrial organization, advance its processes, eliminate wastes, and above all other things must work harder. Two years ago, the opinion among economists that wages and prices would decline somewhat but would remain permanently at a higher level than before the war was rather general. Only a few foresaw that prices and wages would probably fall not only to pre-war levels, but perhaps to lower. Subsequent events have effectively discredited the former view and upheld the latter. The hypothesis that prices and wages would remain upon a permanently higher level that was entertained so generally during 1919 and the first half of 1920, which has now been dismissed by all except the ingrained theoreticians, was founded in scientific analysis upon the quantity theory of money. For the economist who believed in the quantity theory the high prices were fully explained by the outstanding volume of money and credit and there was no need to study conditions any further. Therefore scientific investigation was checked. There are many things wrong with the quantity theory, but it was an idea that appealed to many business men and financiers,

because it suited their purpose, just as did the idea of an advanced scale of living engage the labor leaders. Both thoughts were as mischievous as was that ancient one of Rousseau's about man being born free but being kept everywhere in chains.

The quantity theory of money is one of the things that is close to the root of our economic troubles for it contributes to the popular illusion that in some way the wealth and income of the people of the United States increased as a result of the war. When the question is asked in what manner the world could become prosperous out of the destruction caused by the war the preposterousness of such a thought is readily admitted. The illusionists then fall back to the position that while Europe undoubtedly suffered enormously by the war the United States profited at the expense of Europe and gained both in wealth and earning capacity.

The entertainment of this illusion is one of the explanations of the profligacy in living that has characterized us in recent years; and is one of the reasons for the specters of economic disaster that are now stalking around to plague us. Among these is the soldiers' bonus, which as formulated will mean a distribution of about two billion dollars, at the lowest estimate, among the ex-soldiers. The thoughts underlying the demand for the perpetration of this economic crime were concisely stated in recent remarks by Richard S. Jones, Editor of the *Stars and Stripes*, the war veterans' newspaper, as follows:

"There is reason to doubt the soundness of the argument that payment of compensation to ex-service men would be bad for the country at this time. Many authorities hold that it would be a much needed

stimulus; that the home and farm aid features of the bill would increase productive effort, while the cash feature would be a healthy tonic to the consuming market. In every State when the bonus question has been put to a vote the public has overwhelmingly indorsed it. Business men have been as anxious as laboring men or any other Americans to meet the fair obligation of this nation to those who suffered serious financial setbacks by reason of their war service."

The above expression combines an economic delusion and an illusion. The delusion is a reiteration of the ancient fallacy that prosperity is promoted by waste and spending. It is simply a variation of the thought that it is good to break windows so as to make work for the glaziers. The illusion relates to the notion that the country became wealthy by the war and that the increase in wealth went into the pockets of profiteers, while the soldiers who were in service, lost not only their own chances for profits but also suffered from interruption of their careers, wherefore there should be an equalization of things in the form of this bonus.

It is pathetic that such illusions as to wages, scale of living, profits, bonuses and so forth obtain so generally among the people, for it is they who must especially suffer the consequences of their folly. With anything short of Bolshevism, destroying everything, the rich will always be able to house, feed and clothe themselves. Not so the poor. Yet in their ignorance they are pursuing the course that is inevitably leading them to cold, hunger and misery and their leaders both in the unions and in Congress are deferring to their foolishness rather than trying to lead them wisely. There seems to be nothing to do but allow the economic

forces to work things out in their own relentless way. The workers in each industry have the privilege of saying that they will not come down until everybody else does, and perhaps not then. Nobody has authority to say who shall come down first, or that anybody shall come down. They will have to settle it among themselves. Meanwhile, however, millions of men are idle. It is a pity the agony must be so long-drawn out, a pity that the inevitable adjustment cannot be quickly made, with intelligent comprehension and a coöperative spirit.

We can not hope to begin to handle ourselves properly, as a people, either in the economic, or commercial or political ways until we can ascertain the facts, until everybody can be made to see them clearly and face them no matter how uncomfortable they may be, and govern themselves accordingly. It is my purpose in this book to explain the nature of the wealth of the United States and examine comparatively the positions before and after the war. I shall discuss the amount of the income that we as a people derive from the use of our wealth and our work and the distribution that we make thereof. With the establishment of the facts I shall interpret their meaning and analyze the economic consequences of the war to the American people. And finally I shall try to point out whereby the ravages of the war may be repaired and a sound foundation be laid for restoring the old scale of living and then improving it. These things are going to happen, anyhow, by virtue of the natural processes of evolution, but they will be consummated more quickly and with less anguish if there be first a correct understanding of conditions and next a general coöperation in working according to them.

CHAPTER II

THE PRODUCTION OF COMMODITIES

Before passing to consideration of the inventory of the wealth of the United States it will be advantageous to examine the data of production, for it is out of production that wealth accumulates. Production involves two elements (besides capital and brains), *viz.* materials and labor. For raw materials—the basic commodities—we possess statistics that are very well developed and are undoubtedly close approximations to the facts. For the labor applied to the manufacture of those materials, the distribution of the consumable goods, etc. we possess but little data that are useful quantitatively, but nevertheless we can get ideas about this subject.

It is a common belief that the war stimulated great productivity, yet we are told in the same breath that the efficiency of labor diminished, and indeed we know from ample evidence that the latter was often the case. Study of the broad data will throw light on this matter and will dispel some illusions. It will of course be instantly accepted that the two basic elements of production are raw material and labor, or raw material and man-power. The man-power is roughly reflected by the statistics of population. These are given in an accompanying table, which has been carefully computed by Dr. W. I. King, who has made interpolations between census enumerations by study of the birth

and death rates and the immigration and emigration figures; it has been well proved that this is a determination capable of close approximation.

ESTIMATED POPULATION OF THE CONTINENTAL UNITED STATES
(In thousands)

<i>Year</i>	<i>Jan. 1</i>	<i>June 30</i>
1909	89,557	90,370
1910	91,340	92,229
1911	93,070	93,811
1912	94,500	95,338
1913	96,290	97,278
1914	98,310	99,194
1915	99,870	100,428
1916	101,080	101,722
1917	102,410	103,059
1918	103,660	104,182
1919	104,310	104,847
1920	105,709	106,381
1921	106,821	107,785
1922	108,533	109,184

Unfortunately there are no good statistics as to the total number of workers in the country except the census figures, and there are no good statistics at all as to the classification of workers. For 1916, a year that was about midway between the two census years, there were conflicting estimates from official sources. The Public Service Reserve of the Department of Labor estimated the total labor power (men and women) in the United States in 1916 at 40,100,000. The Provost Marshal General, on the basis of the first selective draft in 1917, estimated the total working population at 43,282,911. In February, 1919, a total of 43,206,912 was estimated.

An examination of the estimates for 1916, with the aid of collateral data, led me in my former monograph to adopt the following figures as the most probable

approximation of the labor power and its distribution among major occupations:

Farmers.....	7,000,000
Farm laborers.....	7,000,000
Lumbermen.....	200,000
Coal miners.....	750,000
Metal miners and quarrymen.....	200,000
Petroleum producers.....	50,000
General laborers.....	4,000,000
Builders.....	2,800,000
Factories.....	7,200,000
Transportation.....	2,800,000
Trade.....	4,000,000
Public service.....	500,000
Private servants.....	4,000,000
Clerks (not elsewhere included).....	500,000
Total.....	41,000,000

This was an industrial classification rather than an occupational. Thus, the clerical class is distributed among the industries in which employed instead of being segregated as a class. The total number of persons engaged in clerical work is given at 2,000,000 in one estimate, but that figure would manifestly duplicate persons entered under other classifications in the above table, and I used the figure of 500,000 as a conjectural allowance for those not elsewhere included, arriving at an estimate of the total number of workers that was a little larger than that of the Department of Labor and a little smaller than that of the Provost Marshal General.

The total population of the United States at the middle of 1916 is estimated at 101,722,000. The number of workers estimated for that period was consequently about 40 per cent of the total population. At

the same ratio the total number of workers at the middle of 1920 was probably about 42,500,000.

Further examination of this subject has revealed the necessity for considerable revisions in the enumeration of workers by classes. Thus, the last census has shown the total number of farms at the beginning of 1920 to have been only 6,450,000, with but little increase during the previous 10 years. The total number of farmers, in the sense of proprietors or operators, was undoubtedly about the same as the number of farms.

According to the census for 1910 the total number of farm laborers was a little in excess of the total number of farmers. However, the census reckoned all persons of both sexes, 10 years old or over, engaged in agriculture. Dr. W. I. King has estimated the number of farm laborers in 1916 at 2,373,000. The census basis of reckoning is undoubtedly too high from the economic standpoint, but on the other hand I have the feeling that Dr. King's figuring is too low.¹

A revised estimate by myself of the number of workers in the United States in 1916 is as follows:

NUMBER OF WORKERS IN THE UNITED STATES IN 1916

Farmers.....	6,400,000	} 11,000,000
Farm laborers.....	4,600,000	
Lumbermen.....	200,000	
Fishermen.....	175,000	
Coal miners.....	750,000	} 1,000,000
Metal miners.....	150,000	
Quarrymen.....	50,000	
Petroleum producers.....	50,000	
Factory workers.....	7,250,000	
Hand trades.....	400,000	

¹ Doctor King's estimate for agricultural laborers excludes workers on home farms, a very considerable number, as he says.

Steam railway men.....	1,875,000	}	2,750,000
Street railway men.....	300,000		
Expressmen.....	75,000		
Mariners.....	250,000		
Longshoremen.....	250,000	}	3,000,000
Telephone and telegraph operators.....	290,000		
Building mechanics.....	1,250,000	}	750,000
Building laborers.....	1,750,000		
Electric light and power.....	100,000		
Federal employees.....	450,000	}	750,000
Government service (not elsewhere included).....	300,000		
Laundry workers.....	175,000		
Private servants.....	3,500,000		
General laborers (not elsewhere included).....	1,500,000		
Clerks (not elsewhere included).....	3,000,000		
Managers, merchants, etc.....	4,000,000		
Professional men.....	2,000,000		
Total.....	41,090,000		

Dr. King, some of whose figures I have used in the above enumeration, gives a different total, his figure being 38,100,000. The difference is explained largely by the matter of farm laborers. I have used a much larger figure than he does, meaning to include all the men who work at some period on the farms. This embraces the large class of floating population that is habitually idle a good deal of the time in each year, the class from which the harvest hands are largely drawn. The census of Jan. 1, 1920, will show about 41,615,000 workers, or about 39.4 per cent of the total population. The same ratio would work out to about 40,350,000 for the end of 1916. With these data we may be reasonably content.

With the steady increase in the population and consequently in the number of workers there should be normally a steady increase in production. This may be checked or accelerated by the following factors, grouped as accelerating or retarding.

Accelerating.

1. Diminution of percentage of idleness.
2. Increase in ratio of workers to population, as by the increased employment of women.
3. Multiplication of man-power by the increased use of machines, improvement in organization, etc.

Retarding.

1. Increase in percentage of idleness.
2. Decrease in ratio of workers to population.
3. Subtraction of man-power for military service, etc.
4. Decrease in efficiency of labor.

Dr. King throws some light on the subject of the working population over a series of years, in the form of the following estimate of the total number of gainfully employed and of the average number of employees attached to each of the principal industries of the continental United States:

	THOUSANDS OF EMPLOYEES IN THE YEAR				
<i>Industry</i>	1909	1910	1911	1912	1913
Mining.....	1,068	1,101	1,126	1,142	1,150
Construction.....	1,459	1,475	1,490	1,491	1,482
Hand trades ^a	413	434	450	468	484
Factory ^b	7,730	7,810	7,970	8,190	8,430
Railway.....	260	272	282	289	293
	1914	1915	1916	1917	1918
Mining.....	1,155	1,157	1,150	1,137	1,099
Construction.....	1,312	1,191	1,089	949	758
Hand trades ^a	500	511	455	505	565
Factory ^b	8,790	9,040	9,628	10,140	10,580
Railway.....	295	297	298	299	300

^a Includes automobile repairing, blacksmithing, tailoring, dressmaking, millinery, shoe repairing, custom grist and saw mills, and other similar minor industries.

^b Includes lumbering and gas manufacture.

In another table he gives an estimate of the ratio of the average number of employees at work to the average

number attached to each of the industries, these figures being as follows:

<i>Industry</i>	1909	1910	1911	1912	1913
Construction.....	.957	.910	.845	.902	.956
Hand trades ....	.925	.887	.893	.850	.831
Factory.....	.958	.943	.941	.968	.950
Steam railway ...	.963	.981	.963	.990	.989
	1914	1915	1916	1917	1918
Construction.....	.782	.816	.960	.974	.959
Hand trades ....	.930	.875	.914	.941	.979
Factory.....	.910	.877	.968	.976	.960
Steam railway....	.874	.856	.947	.989	.989

Out of the above data the matters that concern us chiefly are those that throw light upon manufacturing and transportation, for we have otherwise specific figures for the production of the farmers and miners. Dr. King indicates an increase in the factory workers from 8,430,000 in 1913 to 10,580,000 in 1918. On the other hand there was a decrease in the number of builders from 1,482,000 in 1913 to 758,000 in 1918. His estimates of percentage of employment do not indicate anything very striking, about 95 per cent of the factory workers having been employed in 1913 and 96 per cent in 1918. His figures for the builders conform in a general way to the statistics of building construction, although they seem to be rather premature, for the great decline in building did not begin until after 1916. The increase in the number of factory workers corresponds roughly with the decrease among the builders. As building waned, those men went to work in the factories and shipyards.

The above data while giving us some ideas about the number of persons working fail to throw any light upon the quantity of their production. Now, it is

very well known that when the bidding for labor began in 1915 and became very strong in 1916 the slackness of labor increased in about direct proportion to the demand for it. The slackness was exhibited in three ways, *viz.* shortening of time worked, the performance of less work per hour, and impairment in the quality of the work done. It appeared to be the deliberate purpose of organized labor to do as little work per man and get as many men on the job as possible. Illuminating illustrations of this are to be found in the railway experiences. A distinguished railway president told me of rejecting a demand to put cabs on the tenders of his locomotives. The labor rules required five men on a locomotive. The work was easily done by three and there was room in the cab only for three, so the extra two had to ride in the tender. The demand for cabs on the tenders was to make them comfortable. Things that were equally ludicrous and distressful were to be found in many industries. The theory was to make jobs and draw high pay, and the last thought of all was about the work performed and the rendering of value for what was received. In all of this labor exhibited a distinctly parasitic quality. After the railways were returned by the Government to their owners the first step of the latter was a general "delousing," as it was called.

The slackening tendency of labor was not a direct consequence of the war, for it had been in evidence in previous years. I had an opportunity to observe the same squad of carpenters from 1910 to 1916. Annually their union raised the scale of wages, but per week these men did not increase their receipts. Simply they did not work so many hours. I noted in their

last summer's work that there was no man of this squad who in any week worked the full 44 hours that the union permitted. The war merely emphasized this tendency. Higher wages afforded greater opportunity for loafing.

The impairment in the efficiency of labor in 1916-20 was contemporaneously estimated with widely variable figures. A rather common expression was that efficiency had fallen to 60 to 70 per cent of the pre-war rate. Professor Friday in "Profits, Wages and Prices" said that there seemed to be a general opinion among employers and managers that the efficiency of labor in 1920 was as low as 60 per cent of its 1914 level. Those entertaining such a supposition seem to be unconscious that it does not agree with the notion of increased production coincidentally, for the number of men employed did not increase in any ratio commensurate with such an estimate of decrease in efficiency. In fact the results were widely variable and no generalization for industry as a whole is possible, but for individual industries we can get fairly accurate ideas of what happened.

Things were probably at the worst among the builders, considering major industries. The following figures reported by the Associated Employers of Indiana relate only to bricklayers, but they illustrate conditions prevailing in other branches of the building industry.

<i>Year</i>	<i>Hourly rate</i>	<i>Daily rate</i>	<i>Brick laid per day</i>	<i>Cost of laying 1,000 bricks</i>
1909	\$0.55	\$4.40	1100	\$4.00
1916	0.65	5.20	900	5.77
1918	0.80	6.40	614	10.42
1919	1.00	8.00	587	13.63
1920	1.25	10.00	541	18.50

The above statement of 1,100 bricks laid by a man in a day is conservative. Previous to the war, in heavy wall work 200 bricks per hour was not an unusual figure.

A favorite method of making more work and wasting time and money was the allocation of tasks among the several unions. Jurisdictional disputes were a prolific cause of trouble to anyone trying to build anything or do anything. Richard Spillane in *Commerce and Finance* gives an illustration of this:

“In order to change a nozzle tip in the front end of a locomotive it is necessary:

“1. To call a boiler-maker and his helper to open the door, because this is the boiler-maker’s work.

“2. To call a pipe man and his helper to remove the blower pipe, because this is a pipe-man’s work.

“3. To call a machinist and his helper to remove the tip, because this is a machinist’s work.

“These same three forces must be employed to put in the new tip. Before Federal control a machinist’s helper, or any handy man, put in nozzle tips alone.”

Another example is furnished by C. F. Kelley, president of the Anaconda Copper Mining Co., who reported:

“Suppose we want to put in a little fan underground. What do we have to do? We have to get a carpenter and a helper, an electrical worker and a helper, a machinist and a helper to do a job any two men could do. If a miner should happen to lay down the timbers upon which the fan would be placed, these timbers would have to be removed and a carpenter lay them down.”

The railways of the country, the victims of a weak surrender of the Government to the unions, found themselves almost helpless and under Federal control their situation changed from bad to worse. At the end the Government was employing about 2,300,000 men to do about the same work that 1,800,000 had been doing in 1916.

The workers in mines, metallurgical plants and factories function in more concentrated groups, consequently are more amenable to discipline and control, and for those reasons the impairment in efficiency among them was not so great as among the builders and transportation men. In the latter part of 1920 I had occasion to review what had happened in the zinc smelting industry and reported the following, which may be taken as a fair illustration:

“A safe general deduction from the data is that if the average labor requirement in smelting a ton of blende in 1914 was $2\frac{1}{4}$ man-days, in 1920 it was $2\frac{1}{2}$ man-days. The average rate of wages paid zinc smelters increased from 1914 to 1920 by 2 to 2.67 times. The average extraction of zinc in smelting in the United States decreased from 1914 to 1920 at least 2, and maybe 3 per cent. The importance of the last factor will be appreciated by considering that during a large part of this period zinc was worth about \$200 per ton.

“The deduction to be drawn from the collection of figures on this subject is simple. The zinc smelters, meaning the workmen, of the United States during the period from 1914 to 1920 received a great increase in their rate of wages, in consideration of which they did less work per man, as reflected by the greater number of man-days required to smelt a ton of ore; and even

their diminished rate of working was with impaired efficiency, as is reflected by the decrease in the percentage of zinc extraction."

Everywhere, of course, engineers and managers strove to the utmost to offset the ravages of labor, and in many cases the improvements in ways of doing things that they accomplished compensated in part for what labor was wasting. Thus, the U. S. Steel Corporation raised its steel production per man per year from 50 tons in 1914 to 61 tons in 1916, but fell off to 58 tons in 1918. In its mines the output of iron ore rose from about 2,000 tons in 1913 to about 2,500 in 1916-17. In automobile truck manufacturing the following record of the White Motor Co. is picturesque.

	<i>Factory value of product</i>	<i>Average num- ber of men</i>	<i>Average weekly wage</i>	<i>Trucks per man per year</i>
1914	\$9,023,172	2,202	\$15.03	1.924
1915	21,040,078	3,758	16.51	2.460
1916	17,053,311	3,611	17.34	2.082
1917	22,448,927	4,341	20.94	2.040
1918	30,925,748	4,844	27.07	2.720
1919	35,525,417	5,475	31.73	2.766
1920	50,246,448	6,600	37.87	3.017

Due to this greater productivity per man, for which the man was not responsible, the company was able to hold average truck prices close to 10 per cent above the 1914 figures.

Even in the building industry it was found possible, here and there, to circumvent the impairment in the efficiency of labor. Thus, the Youngstown Sheet and Tube Co. built 281 three-room to five-room houses for its men. The first 146 houses cost \$3,420 each. The remaining 135 cost only \$2,107 each. The lower cost

of the latter was attributed to the effects of quantity production and the development of an efficient working organization.

All things considered, however, I can not see any strong evidence of quantitative increase in the output of labor in building and manufacturing from 1916 to 1920. In terms of value there was an enormous increase, but this was more or less in proportion to the increase in prices and wages. There is no good reason to look for anything otherwise. All of the factors, plus and minus, accelerating and retarding, that I have previously enumerated, have been in evidence since 1914. The indications are that on balance the minus factors exceeded the plus, especially since 1916. At the best it can not be discerned that the productivity of labor did any more than hold its own.

Now, let us turn to the statistics of production of raw materials as reported by the U. S. Geological Survey, for mineral products, and the Department of Agriculture for animal and vegetable products. In order to arrive at quantitative totals, however, I have converted everything into terms of the ton of 2,000 lb. In doing so, I have used the following equivalents: Lumber, 1,000 ft. b.m. = 4,000 lb.; cotton, 1 bale = 500 lb.; corn, 1 bu. = 56 lb.; wheat, 1 bu. = 60 lb.; oats, 1 bu. = 32 lb.; barley, 1 bu. = 45 lb.; rye, 1 bu. = 56 lb.; potatoes, 1 bu. = 60 lb.; apples, 1 bu. = 50 lb.; milk, 1 gal. = 8 lb.; eggs, 1 doz. = 1.2 lb.; cement, 1 bbl. = 376 lb.; petroleum, 1 bbl. = 280 lb.; poultry, average 4 lb. per head. While these factors may introduce some errors the resulting figures are near enough. The totals are summarized in the following table, wherein the aggregates of quantity

and value are stated in terms of millions both as to tons and dollars:

<i>Year</i>	<i>Tons produced</i>	<i>Actual value of product</i>	<i>Value per ton</i>	<i>Value of produce at 1913 prices</i>	<i>Value per ton at 1913 prices</i>
1913	1118	\$11,559	\$10.34	\$11,559	\$10.34
1914	1059	11,184	10.56	11,835	11.17
1915	1099	11,483	10.45	12,317	11.21
1916	1170	14,650	12.52	12,327	10.54
1917	1230	21,273	17.29	12,632	10.27
1918	1215	25,134	20.68	13,180	10.84
1919	1096	27,566	25.14	12,759	11.64
1920	1237	23,950	19.36	13,850	11.20

The column "value at 1913 prices" is introduced in order to show what the annual produce would have come to at the prices prevailing in 1913. This gives a clearer idea of the changes in the physical volume of production. We might have produced 10 tons of gravel and 1 ton of copper in 1913 and 1 ton of gravel and 10 tons of copper in 1920 and by simply footing up the quantities get 11 tons in each year, obscuring the fact that the total production in 1920 was much more valuable than in 1913. Computation of all products at the prices of 1913 naturally takes into account the proportion of each commodity produced and affords a truer picture of the physical volume of production.

The above data also enable an instructive comparison of indices to be made. My own averages are truly weighted as to domestic production and the indices derived therefrom are truly quantitative.¹ Obviously, they are neither weighted nor quantitative with respect to consumption, and obviously moreover they do not introduce prices for manufactured goods.

¹ For method of derivation see Appendix B.

On these accounts there should be variations from other indices as appears in the following comparisons:

INDEX NUMBERS OF COMMODITY PRICES				
<i>Year</i>	<i>Bradstreet*</i>	<i>Dun*</i>	<i>Bureau of Labor</i>	<i>Ingalls</i>
1913	100	100	100	100
1914	97	101	98	100
1915	107	105	101	102
1916	128	123	127	123
1917	170	169	177	173
1918	203	190	194	198
1919	203	191	206	230
1920	204	207	226	187
1921	123	141	147	148

* Recomputed by myself so as to make 1913 the basis, as 100.

INDEX NUMBERS OF PHYSICAL VOLUME OF PRODUCTION					
<i>Year</i>	<i>Day</i>	<i>Stewart</i>	<i>Snyder</i>	<i>King</i>	<i>Ingalls</i>
1910	93	95	91	89	
1911	89	92	90	88	
1912	102	105	97	95	
1913	100	100	100	100	100
1914	98	100	97	96	102
1915	105	111	104	106	108
1916	111	116	118	126	106
1917	114	123	125	119	110
1918	113	124	129	113	112
1919	107	119	116	110	108
1920	...	...	...	...	116
1921	...	...	...	...	103

Even with the above explanations there ought not to be such great differences as appear, especially among the several indices for commodity prices after 1916. There is fair agreement between my indices and those of the Bureau of Labor for the years except 1919-20. The discrepancies for those years are probably associated with the chaotic conditions of 1920. These comparisons throw doubt upon the commonly accepted indices of commodity prices.

Among the several indices for the physical volume of production there are not such great differences.

My figures are somewhat lower than those of any other authority, but they differ least from those of Doctor E. E. Day, which perhaps are the most careful and comprehensive of the four with which I have made comparison. The discrepancy among these figures is in itself a ground for suspicion and their lack of harmony with the series that I offer is a warning to us that we must be cautious in using and interpreting index numbers.¹

However it is not my purpose to enter into a discussion of this subject, which is a side-issue. My own indices, which are computed by a method that unfortunately is impossible until about 10 months after the end of a calendar year are in line with the collateral evidence that I have presented in this chapter to the effect that the physical volume of production increased from 1913 by much less than is commonly computed, and the increase in the national income was far more the consequence of writing up prices than is commonly supposed.

My computations of the total production of commodities in the United States, which are given in detail in an appendix, agree rather closely with the statistics of the Interstate Commerce Commission for the quantity of original freight, which are as follows:²

¹ There is further discussion of this subject in Appendix B.

² The railway figures should not correspond exactly with the production figures. Considerable freight is moved over rivers, canals and highways. On the other hand, the railway statistics to some extent count the same products twice, *e.g.*, iron ore first and then the pig iron made from it. The production figures also must be viewed with qualifications. Here also there is duplication. Thus much of the hay and not a little of the cereal crops appear in meat, poultry, milk and eggs. Some products may be adulterated. In 1917 a large tonnage of slate was mined with the coal and sold as such.

<i>Year</i>	<i>Tons</i>
1916	1,203,367,190
1917	1,264,015,725
1918	1,263,343,993
1919	1,096,111,271
1920	1,255,704,973

Not only did the tonnage of products fail to increase after 1916, but also the work performed by the railways did not increase materially, except in the matter of passenger transportation. In a recent statement before the Senate Committee on Interstate Commerce Daniel Willard, President of the Baltimore & Ohio Railroad Co., reviewed the conditions confronting the railroads during and immediately following Federal control, and submitted extensive data "showing what has happened to the railroads since 1916." Mr. Willard gave the accompanying table of figures:

<i>Year</i>	<i>Net ton miles</i>	<i>Passenger miles</i>	<i>Transportation service train miles</i>
1916	396,365,917,082	34,585,952,026	1,224,168,566
1917	430,319,014,635	39,476,858,549	1,237,137,632
1918	440,001,713,665	42,676,579,199	1,175,782,791
1919	395,679,051,729	46,358,303,740	1,117,547,908
1920	449,292,355,000	46,724,880,000	1,205,626,175

It appears from these data that there was but little change in the quantity of original freight during the period 1917-20. After 1916 each ton was carried on the average a greater number of miles, this reflecting one of the dislocations following the entry of the United States into the war. The aggregate of passenger travel increased a great deal. Excessive railway travel was one of the luxuries of the period. The work was done without any increase in the number of train miles, this reflecting the efforts of the railway managers to increase

car-loadings and crowd the passenger cars. In order to do the railroad work, but slightly increased, a vastly greater number of men was required.

It is important to bear in mind that during the period 1913-20 the population of the United States, and consequently the number of workers, was steadily increasing. In 1917-19 many men were withdrawn from production but on the other hand many of the habitually idle and many women were induced into regular work. The total production of commodities per ton and the average of tons per person of the total population are given in the following table:

<i>Year</i>	<i>Production, tons</i>	<i>Population</i>	<i>Tons per head</i>
1913	1,118,363,284	97,278,000	11.49
1914	1,058,711,808	99,194,000	10.67
1915	1,098,749,047	100,428,000	10.94
1916	1,169,835,317	101,722,000	11.50
1917	1,229,842,640	103,059,000	11.93
1918	1,215,200,281	104,182,000	11.66
1919	1,096,346,124	104,847,000	10.45
1920	1,236,891,839	106,000,000	11.67

It ought not to be attempted to come to any refined conclusions from the above data, for there are numerous disturbing factors involved. Thus, among others, the volume of agricultural products varies considerably from year to year, according to climatic conditions, and is the result of the efforts of a substantially uniform number of workers, who have a good deal of elasticity in their ability to handle more tons per man than ever are they called upon to do.¹ In the main, however,

¹ It is important to note that whereas the agricultural produce in 1916 was only about 28 tons per worker the output of minerals was nearly 1,100 tons per worker. This reflects the difference between a slightly mechanized and a highly mechanized industry. This comparison is not strictly correct. The mineral statistics, showing an output of nearly 1,100

these figures may be accepted as indicating that the increase in the physical volume of production was roughly commensurate with the natural increase in man-power and was about what would normally have been expected. It is certain that the war did not have the effect of enriching us by stimulating our workers as a whole to extraordinary effort.

Examination of the figures in more detail throws further light on the subject. It appears that the production of lumber, cement, sand, gravel, stone and lime, grouped as building material, fell off from 274,-000,000 tons in 1913 to 211,000,000 in 1918 and in 1920 had risen only to 236,000,000. The production of fibers showed but little change from year to year. The total tonnage in 1920 was less than in 1913. On the other hand the production of metals rose from 36,-000,000 in 1913 to 47,000,000 in 1916 and in 1920 was still 43,700,000. Fuels rose from 605,000,000 in 1913 to 728,000,000 in 1918 and fell to 599,000,000 in 1919, rising again to 708,000,000 in 1920. Of agricultural products, other than fibers, there was a large and generally increasing production right along. In 1913 the total was about 185,000,000 tons. In 1915 it was 219,000,000 and in 1920 it was 227,000,000.

tons per man, are based largely on crude products. The agricultural statistics, especially those for the cereals and the dairy products, reflect the marketable concentrate. In getting a ton of shelled corn the farmer handles more tons of cob and stover. Similarly with wheat, oats, etc. The bulk of the substance to be handled is also a factor for consideration as well as weight. The average marketable crop of the farmer in 1916 was only a little more than 25 tons, while a man will easily shovel that weight of coal or ore in a day. Nevertheless, upon any basis of figuring, it is true that the farmer produces much less in weight per man per annum than the miner, and the fundamental explanation of this is that the work of the miner is immensely multiplied by machines and engineering methods.

These figures give us quantitative expressions of what happened, as we know from our other knowledge of the events. Under the stimulus of rising prices, induced by the demand of the people of Europe who could not feed themselves, and blessed by favorable climatic conditions our farmers increased greatly their production. They were able to do this with substantially the same man power, which has changed but little during the last 10 years. This was easily possible, for as I have pointed out, there is more elasticity in the productivity of the agricultural worker than perhaps in any other class. So it was also in the production of metals. That industry more than any other is mechanized for mass-production and with but little addition to the man power it was possible to increase output greatly and swiftly. This was the achievement of the engineers, who with their methods and machines more than offset the ever increasing slackening of labor.

In manufacturing it is doubtful whether we made any increase in our application of labor. What we really did was to apply our man-power to different kinds of work. Thus, we made an enormous transfer of men from ordinary industries to shipbuilding, the construction of automobiles, and the manufacture of ammunition and military equipment. A good deal of this labor was sold to Europe, but more was expended for wasteful purposes in this country. Out of a substantially stationary production of cotton and wool we made clothing for Europe instead of for ourselves. We built ships and automobiles instead of houses. This is shown in the statistics for those industries and is reflected in the diminished production of lumber and stone.

In transportation we suffered great waste and inefficiency. Enormous quantities of goods and millions of men had to be carried huge distances. The courses of the world's traffic were dislocated and realigned. Considering these conditions we can understand the needs for the immense production of fuel in 1918, much of which was consumed in work that added nothing to the wealth of anybody.

On the face of the production data the American people did not have annually in the period 1914-20 any increase in the quantity of raw material over what they had been having previously. In 1913 the average was about 11.5 tons per person. In 1917 it was 11.9; in 1918 and 1920 it was 11.7. In every other year since 1913 it was 11.5 or less. Nor is there any good evidence of the exercise of increased man-power in manufacturing, carrying and trading, but rather are the indications the other way.¹ If there had been no war the probability is that the American people would have proceeded along the even tenor of their way, adding annually to the national wealth by accounts varying a little according to whether it were a good or a bad year, but in general accumulating at a rate a little in excess of the rate of increase in population.

Now, out of such surplus of production that we may have, out of the surplus above what we need for our own

¹ Following the collapse of the boom, which was clearly evident in the third quarter of 1920 the first response on the part of labor was "speeding up," the change in attitude being instantaneous and dramatic. The automobile tire makers in Akron, Ohio, who in 1920 made about 1.4 per man per day at the middle of 1921 were making about 2.8. Of course, this was only partly the result of "speeding up," part of the improvement being due to "weeding out" the inefficient, the latter being the first step in conforming to curtailed demand and declining prices. Experiences of this kind were characteristic of many branches of manufacturing industry.

immediate consumption, we may do one of three things—or of course all of them together—but the surplus must flow into these channels. (1) We may put it into physical property. (2) We may give it to foreign countries and accept their due-bills in exchange, which will eventually provide us with property or goods if the bills be paid. (3) We may waste it. Of the first and second dispositions there must be evidences that can be seen and measured in some way. Let us therefore proceed to such an estimation in order to ascertain what has become of the surplus since 1916 and determine what there is that can now be seen and in fact how we stand.

CHAPTER III

THE NATIONAL WEALTH—THE EXTERNAL POSITION

What may be described as the external position comprises the ownership of property and the debits and credits on accounts that extend beyond our national boundary lines. The internal position relates only to the property existing within the nation. Internal accounts and obligations pertain to the division of wealth among ourselves, but although the proportionate division may change, the aggregate wealth of the nation—of the people as a whole—may remain the same. Previous to the war the external position of the American people was relatively simple. Now it has become complicated and extensive. The external position at present may be classified as follows:

Credits.—(1) Indebtedness of foreign governments to the American government. This represents advances, made during the war and subsequently, by the American government to the allied governments.

2. Funded foreign obligation. This comprises the foreign governmental, state and municipal bonds that have been purchased privately by people in this country and are held by them.

3. Unfunded foreign obligation. This includes the obligations of people in foreign countries to people in this country on open accounts, which have arisen mainly through the purchase of more goods from us than the

sales of goods to us, in other words from the adverse (to foreign countries) balance of trade. The handling of these accounts is a banking affair and it is a serious factor in the present situation. These accounts must either be settled by the sale to us of goods or property, or else they must be written off as losses. Inasmuch as the former kind of settlement can not be effected quickly, in all probability this foreign indebtedness will eventually have to be funded, to a more or less extent, *i.e.*, we shall have to take Europe's long-time obligations.

4. Foreign investment of American capital. This has taken the forms of:

(a) Purchase of foreign internal governmental and municipal securities and currency.

(b) Purchase of foreign corporate securities.

(c) Purchase and development of physical property abroad.

(d) Investment of capital for the conduction of commercial enterprises abroad.

There is no sharp line of division among the kinds of investment classified as 4(b), (c), and (d). These forms of investment have increased considerably during the last five years. They are likely to increase much more in the years to come, for one of the ways to obtain payment of the bonds and bills that are owed to us will be to take foreign mines, manufactories, railways, etc., or interests in them.

Debits.—The obligations of the people of the United States to the people of foreign countries fall under the same classifications as the credits, but practically the only things that now amount to much are the residues of Europe's ownership in our internal property, or the corporate securities that represent it.

FOREIGN OBLIGATIONS ACCRUED

For the debt of foreign governments to the government of the United States arising out of the European war we have exact figures, which were recently reported by Secretary Mellon as follows:

Obligations for advances made under the various Liberty Bonds accounts.....	\$9,435,225,329.24
Obligations received from the American Relief Administration.....	84,093,963.55
Obligations received from the Secretary of War and from the Secretary of the Navy on account of the sale of surplus war materials.....	565,048,413.80
Obligations held by the U. S. Grain Corporation.....	56,899,879.09
Total.....	<u>\$10,141,267,585.68</u>

At the middle of 1921 the accumulated accrued interest on the Allied Debts, as above, was about \$945,000,000.

The cost of maintaining the American forces on the Rhine, from Dec. 18, 1919, to Dec. 31, 1920, was \$269,857,000, of which a portion had been reimbursed, leaving \$233,824,000 due. This constitutes a debt owed us by Germany. As of June 30, 1921, the amount may be put roughly at \$250,000,000.

FUNDED FOREIGN OBLIGATIONS

By the end of 1916 a large volume of foreign governmental and municipal loans had already been financed in the United States. The amount and issues of these loans outstanding at that time were as follows:

WEALTH AND INCOME OF

October,	1914	Norway.....	\$	5,000,000
March,	1915	Switzerland.....		10,000,000
May,	1915	Argentina.....		50,000,000
July,	1915	Canada.....		20,000,000
October,	1915	Anglo-French.....		500,000,000
October,	1915	Italy.....		25,000,000
January,	1916	Norway.....		5,000,000
March,	1916	Canada.....		75,000,000
June,	1916	Newfoundland.....		5,000,000
July,	1916	American Foreign Securi- ties Co.....		94,500,000
August,	1916	United Kingdom.....		250,000,000
October,	1916	United Kingdom.....		300,000,000
October,	1916	City of Paris.....		50,000,000
November,	1916	City of Bordeaux.....		20,000,000
November,	1916	City of Lyons.....		20,000,000
November,	1916	City of Marseilles.....		20,000,000
November,	1916	Russia.....		25,000,000
November,	1916	China.....		5,000,000
Total.....				\$1,479,500,000

Many of the above loans were for short times only and were paid off previous to 1921.

In addition to the above there were outstanding at the end of 1916 old loans to Canada and Newfoundland to the amount of about \$250,000,000. Consequently the total of the foreign obligations to us at that time was about \$1,750,000,000. This does not include our holdings of Mexican bonds, to the amount of nearly \$200,000,000, on which interest had already been defaulted.

In 1917-1920 we absorbed a great volume of foreign governmental securities. According to a table compiled by the Guaranty Trust Co., as given in the monograph by John H. Williams, *Review of Economic Statistics*, supplement No. 1, June, 1921, the amount of the foreign government, state and municipal loans

placed in the United States and outstanding Jan. 1, 1921, was as follows:

Canada and Newfoundland.....	\$345,534,260
Mexico.....	500,000
Cuba.....	10,000,000
Panama.....	2,705,000
Santo Domingo.....	13,854,100
Argentina.....	2,870,000
Bolivia.....	4,075,000
Brazil.....	24,000,000
Great Britain.....	673,494,500
France.....	220,508,000
Germany.....	2,000,000
Russia.....	107,500,000
Belgium.....	75,000,000
Italy.....	25,000,000
Norway.....	34,000,000
Switzerland.....	67,000,000
Sweden.....	25,000,000
Denmark.....	40,176,400
China.....	13,000,000
Japan.....	107,802,000
Total.....	\$1,794,019,260

Loans to Philippine Islands, Hawaii and Porto Rico (\$25,500,000 outstanding) are not included in the above table.

During the first half of 1921, loans made by private banking interests in the United States to foreign governments, including the latest loan of \$7,500,000 to Uruguay, amounted to \$216,000,000. The largest foreign issue placed in the American market this year was the French 7½ per cent loan of \$100,000,000. This was followed by the Belgian loan of \$30,000,000 made in February. Other large foreign issues since January 1 include \$24,000,000 to Chile, the \$15,000,000 Danish consolidated municipal loan, \$25,000,000 to Brazil, and \$10,000,000 to São Paulo.

Post-war monetary requirements of foreign countries resulted in the underwriting of loans aggregating \$1,001,385,000 in this country since the signing of the armistice. The largest single piece of foreign financing in that period was the British government 10-year convertible 5½ per cent issue of \$148,379,000. The next in size was an issue of \$101,620,000 3-year 5½ per cent notes, also by the United Kingdom.

Up to the end of 1920 the total investment by the American people in foreign governmental, state and municipal external bonds was about \$1,800,000,000. At the end of 1916 the total was about \$1,750,000,000. Many of the bonds that were outstanding at the end of 1916 were paid between that time and the end of 1920.

UNFUNDED FOREIGN OBLIGATIONS

Dr. B. M. Anderson, Jr., in the *Chase Economic Bulletin*, No. 1, estimated that the unfunded debt of Europe to the United States had grown from Jan. 1, 1919, to Sept. 15, 1920, by the amount of \$3,772,000,000. On Jan. 1, 1919, Europe appears to have been a creditor to the extent of perhaps as much as \$200,000,000 on current items. This had been swamped and by Sept. 15, 1920, a net unfunded debt of something over \$3,500,000,000 had been created.

The greatest part of this unfunded debt of Europe has been piled up since the middle of 1919, as the American Government had practically ceased making advances for financing export trade by that time. Since the middle of 1919, virtually the whole export balance has gone on open account and so has contributed to the unfunded debt. Long time loans made by private investors in America to Europe to aid exports

have been exceeded by old loans maturing, in the period under discussion.

The growth of the unfunded debt was accompanied by a great collapse in the foreign exchange rates, a collapse which first assumed dramatic proportions in June, 1919.

The primary source from which this money was drawn was the American banks, which provided it directly or indirectly through the creation of new bank credit. The major part of this credit was not extended directly by American banks. A greater part came, in the first instance, out of the working capital of American producers and exporters, who thus tied up a great deal of working capital in indefinite advances to Europe. This led them, however, to have recourse to their American banks for the replenishment of their working capital under ordinary "line of credit" loans, and the banks thus indirectly bore the burden even where they did not bear it directly.

In a private communication to me, Doctor Anderson estimated that at the middle of 1921 the unfunded indebtedness of Europe to the United States had risen to about \$4,500,000,000. This estimate was confirmed by an article in the *Federal Reserve Bulletin* for August, 1921.

John H. Williams in *The Review of Economic Statistics*, supplement No. 1, June, 1921, presents the results of a careful study in which he arrives at a radically different conclusion as to the amount of the unfunded indebtedness to the United States. According to his calculations this was \$616,000,000 at the end of 1920, and allowing for possible errors probably did not exceed \$1,000,000,000. The greatest difference between Doctor Anderson and Doctor Williams relates to the

position at the end of 1918. Doctor Anderson assumed that Europe had credits in the United States at that time to the amount of \$200,000,000. Doctor Williams computes \$2,057,000,000. This is a very shadowy subject. In spite of the figures that are adduced it seems incredible that Europe could have had private credits in this country to the amount of two billion dollars at that time. As for 1919-1920 Doctor Williams' computation of the unfunded balance in favor of the United States is \$2,673,000,000 against Doctor Anderson's \$3,772,000,000.

The subject is commercially of major importance, and for that reason it became highly controversial, owing to the difference among these estimates. The Federal Reserve Board was led to return to the subject, and a revised analysis and estimate by it was published in the *Federal Reserve Bulletin* for November, 1921. According to this revised estimate the net balance on open account owed by the United States on Dec. 31, 1918, was \$882,000,000. In 1919 the net addition to the unfunded credit balance of the United States was computed to be \$1,353,000,000, with the addition of \$1,732,000,000 in 1920 and \$505,000,000 in the first nine months of 1921. According to this computation the net unfunded credit balance of the United States on Oct. 1, 1921 was \$2,708,000,000, subject to modifications that will be noted presently. Omitting the accrual in 1921, the position at the end of 1920 was a net unfunded credit balance of \$2,203,000,000 at that time. The modifications previously intimated relate to unofficial estimates as to European settlements of cancelled war contracts amounting to \$500,000,000 and the transferal of deposit balances by Far Eastern banks

from London to New York during 1919-1920 amounting to \$200,000,000. These credit items of \$700,000,000 have to be added to the official estimate and increase the unfunded balance to \$2,903,000,000 as of Dec. 31, 1920 and \$3,408,000,000 as of Oct. 1, 1921.

Attention is to be drawn to the difference between the bases of the estimates of Doctor Anderson and the Federal Reserve Board. The former estimated the position as between the United States and Europe, while the latter took account of the position between the United States and the rest of the world. The Board points out that "this balance with the world is not to be identified with our balance with Europe taken alone. There is no necessary conflict between the figure (\$3,408,000,000) here given and the somewhat higher estimates which have been made of Europe's unfunded debt to private creditors in the United States." The reference here is obviously to Doctor Anderson's estimate. Besides having confidence in the quality of Doctor Anderson's work in general and the benefit of numerous discussions of this matter with him, I am aware of the existence of authoritative data supporting his contention as to the position at the end of 1918. Making allowances for the difference between the bases of estimation, the recent report of the Federal Reserve Board may be regarded as a substantial confirmation of Doctor Anderson's work. In my inventory I use the figure of \$2,900,000,000 for the net unfunded credit balance of the United States at the end of 1920.

AMERICAN SECURITIES OWNED ABROAD

In 1914 the amount of the American securities that were owned abroad was estimated at about \$4,500,000,-

000, these being held chiefly in Great Britain, and to a much less extent in Holland, France and Germany. In 1915 and 1916 these were largely resold to us. It is difficult to estimate exactly the amount of this liquidation. Vice-president Rovensky of the National Bank of Commerce in New York in September, 1918, estimated the volume of American securities we purchased from Europe between Jan. 31, 1915, and Jan. 31, 1917, at \$1,743,000,000. Between Jan. 31, 1917 and September, 1918, he put the amount at \$250,000,000. From September, 1918, to the end of that year no estimate was made. Let us guess \$150,000,000.

From Jan. 1, 1919 to Sept. 15, 1920, Dr. B. M. Anderson, Jr., of the Chase National Bank, estimated that America re-purchased \$200,000,000. From Sept. 15, 1920, to the middle of 1921, let us guess another \$100,000,000. We shall arrive, therefore, at a grand total of \$2,443,000,000 value of American securities re-purchased from Europe. Let us say, \$2,500,000,000.

These figures are substantially confirmed by other estimates. In the *Review of Economic Statistics*, July, 1919, it was estimated that the return of American securities up to the end of 1918 had been about two billion dollars. In 1919 about \$150,000,000 was re-purchased and in 1920 about \$200,000,000, according to John H. Williams. The several authorities who have looked into this subject agree fairly well, therefore, upon about \$4,500,000,000 of American securities being held abroad at the beginning of the war, and about \$2,500,000,000 at the end of 1920 or in the early part of 1921.

These figures match fairly well with some recent British data. In July, 1921, the Chancellor of Exchequer stated that total of American dollar securities

lent to the Treasury during the war was £438,311,000, of which £320,454,955 had been returned to holders, leaving £117,856,045 still on deposit, from which it follows, that Great Britain still has about two billion dollars of our securities.

According to Edgar Crammond, in a recent address to the British Institute of Bankers, the foreign and colonial investments of Great Britain previous to the war amounted to about £3,554,000,000. That figure comprised only the capital invested in foreign or colonial loans and in public undertakings and companies. It did not include the capital privately invested abroad in the purchase of land, etc., nor the capital employed abroad by the principal British banking, mercantile and shipping houses. Assuming that these private investments were as much as 10 per cent of the public investments (a very moderate estimate) the total of British foreign investments at the end of 1913 was four billion pounds. Since 1913, the bulk of Great Britain's American holdings and a large proportion of its Canadian and Japanese stocks and a small percentage of its South American investments have been sold, the aggregate of these sales having been about one billion pounds.

PROPERTY IN THE UNITED STATES OWNED BY ALIENS

Not included in the statement immediately preceding is a good deal of property in the United States owned by aliens either privately or through close corporations. There is no reasonable way of arriving at the amount or value of this.

The total value of the property of foreign ownership in the United States that was seized at the beginning

of the war and put into the hands of the Alien Property Custodian was about \$600,000,000. Of this there had been returned previous to the middle of 1921 to the original owners, or to persons who had established claim under Section 9 of the Trading with the Enemy Act, property valued at \$155,000,000. These figures can be regarded as hardly more than indications of real value, for naturally there have been fluctuations in the securities administered, with perhaps a general tendency toward decrease. At the middle of 1921 the value of all enemy property administered by the Alien Property Custodian was estimated at about \$379,000,000. The return of this property awaits future legislation by Congress.

PRIVATE INVESTMENTS IN FOREIGN COUNTRIES

Besides the money loaned to foreign governments by the United States Government, and the foreign government, state and municipal loans that have been floated privately in the United States, there is a private investment of American capital abroad. This is divisible into two items: (1) capital invested by American corporations or by individuals in industrial undertakings abroad, as for example, lands, mines and manufacturing plants in Canada and Mexico, docks in Hamburg, sugar plantations and mills in Cuba and Haiti, oil developments in Venezuela and Colombia, meat packing plants in Argentina; and (2) American speculative investments in European internal bonds and in European depreciated currencies. On neither of these subjects have there been any adequate data. It has commonly been supposed that the foreign investments of the United States were inconsiderable.

It will appear, however, that that view was erroneous. The United States has in fact a very large investment in lands, mines and industries in Canada. Its investment in Mexican mines and oil fields, in the Cuban sugar industry, and in mines in Peru and Chile is also very large.

Since 1916 there has been a noteworthy increase in the investment of American capital in foreign countries, especially in Canada. Outside of that the largest item is the petroleum industry of Mexico, in which we are estimated to have \$200,000,000. A large part of this has been invested since 1916. Also we have put a good deal of money into copper mines in Chile, and into sugar plantations in Cuba. We have large investments in mines in Canada and Mexico, but into them we have not put much money since 1916, certainly not into Mexico. We have acquired some interests in South African mining enterprises. On the other hand, some large manufacturing interests in Russia have been transformed into assets of uncertain value. In fact, most of the concerns that had them have written them off.

EUROPEAN INTERNAL SECURITIES

In the pamphlet on *The Future of Our Foreign Trade*, this being a study of our international trade balance in 1919, by Frank A. Vanderlip and John H. Williams, it is stated that "the speculative purchase of European internal bonds and depreciated European currencies can not, as will readily be appreciated, be arrived at with precision. No item of our international balance has aroused more general attention than has this one, and for no item are the data more elusive and the

estimates more widely at variance with each other. It is generally known that these speculative purchases have been very numerous and very widespread. Whether they amount to large figures in dollars is by no means so certain. It is to be noted that even very considerable purchases, as quoted in the foreign depreciated currencies, would be reduced to inconsiderable figures when stated in dollars."

In the *Chase Economic Bulletin*, Vol. I, No. 1, it was estimated that the internal European securities held in the United States represented \$155,000,000. John H. Williams, however, estimates that \$75,000,000 of these securities was purchased in 1919 and \$100,000,000 in 1920. Previous to that time, especially in 1916, there had been large purchases of Russian internal bonds. The Russian financial authorities in this country estimate that between 100,000,000 and 200,000,000 rubles of the Russian internal bonds were placed with American investors in 1916 and 1917, but there seems to be no very definite grounds for their figures. In the absence of any better information we may assume the amount at 150,000,000. These bonds were largely sold at the price of about \$300 per 1,000 rubles. We may estimate roughly an American investment of about \$45,000,000 in this issue.

There have also been large purchases of French, Belgian, Italian, British and German internals. Recently South American internals commenced to attract the attention of speculators. The principal feature of internals is the speculative possibility through an advance in exchange. With the currencies of almost every nation of the world at a discount as compared with the dollar, the opportunities for appreciation of

principal have been considered, rightly or wrongly, to be numerous and attractive.

It is impossible to make any accurate expression of the total amount of this kind of paper that is held by the American people. The fragmentary data that have been here noted indicate that we may have put \$400,000,000 into foreign internals. Some of this, particularly the speculation in Russian internals, has already had to be written off as a loss.

Similarly there have been large purchases of foreign currencies and large losses in them. Especially was there an immense and disastrous speculation in German marks. It is in no wise improbable that the United States has lost, or stands to lose, something like \$600,000,000 in speculation in foreign internal bonds and foreign currencies. This may be regarded as a conservative statement.

FOREIGN COMMERCIAL INVESTMENTS

The largest commercial investments of the United States are in Canada, Mexico, Cuba and South America, and these are mainly in lands, mines, oil wells, railways and public utilities; but there is scarcely a country of the civilized world in which American capital does not have some interests, which in certain cases aggregate to rather large figures. I have made an attempt to enumerate these, obtaining data to a large extent from replies to a questionnaire, addressed to the principal American industrial companies. The results of this investigation are presented in the following pages. It has not been very satisfactory, having been an exploration into an almost unknown field, and it is hoped that

this presentation will lead other statisticians to investigate the subject more thoroughly.

Frederick M. Halsey, as special agent, made a study of "Investments in Latin America and the British West Indies" which was published by the Department of Commerce as *Special Agents Series*, No. 169. In his introduction to this report Mr. Halsey says: "Before the war the interests of the United States in South America, other than in mines and the packing industry, were negligible. During the lull that followed the closing of the various stock exchanges much attention was given to Latin America, and the first steps were taken to interest American bankers in the opportunities presented in that field. During the early months of 1915 a loan was made to Argentina by American investment houses, and the bonds were publicly offered with success. Other loans followed this one, and a number of shares in railways in Argentina were purchased by investors through London. Two short-term note issues of South American railways were afterwards floated in the United States, these being obligations of the Antofagasta & Bolivia Railway (\$3,000,000), and the Central Argentine Railway (\$15,000,000). Other investments (largely in mining securities) were made, including bond issues of the Cerro de Pasco mines, the Chile Copper Co., and the Braden Copper Co., operating in Peru and in Chile. American interests have also turned their attention to developing the petroleum resources of Venezuela, Colombia, and Peru, as well as the nitrate fields of Chile, the manganese deposits of Brazil, and other forms of enterprise."

Mr. Halsey's report, having been made just previ-

ously to America's entry into the war fortunately gives us a good starting point in so far as investments in South America are concerned.

SOUTH AMERICA

Argentina.—The United States has a relatively small investment in the industries of this country. The largest single item is in meat packing establishments, in which about \$12,000,000 had been invested up to the end of 1916, largely by the Armour and Swift interests. In the bonds of the Central Argentine Railway we had \$15,000,000. All told the United States may have had \$30,000,000 invested in Argentina at the end of 1916. Since then there has been some extension of the interest in meat packing. The International Portland Cement Co., through the Argentine Portland Cement Co., built a cement manufacturing plant at Buenos Aires. The National Lead Co. has engaged in the manufacture of white lead in the country and some other concerns have instituted small enterprises. In general, however, the eyes of American investors have not yet been attracted extensively to Argentina outside of the national bond issues. Probably \$40,000,000 will fairly represent the total American investment in Argentina at the end of 1920.

Bolivia.—The United States has some investments in Bolivian mines, but these are relatively small. In the notes of the Antofagasta & Bolivia Railway there was \$3,000,000. An estimate of \$5,000,000 total of American money in Bolivia at the end of 1916 will be conservative. Since then a rather large amount has been put into tin mining, and there have been at least two large investments in prospective petroleum lands.

At the end of 1920 the total of American capital in Bolivia may have been \$15,000,000. American interests have lately made arrangements to finance and build the railways that will connect the Bolivian system with that of northern Argentina, which now ends at the frontier.

Brazil.—According to Frederick M. Halsey, American capital was already becoming a factor in the development of Brazil at the time of writing his report. He said: "Cattle raising and meat packing, mining, and other fields of enterprise have attracted the attention of American financiers, and the National City Bank, with its several Brazilian branches, has assumed considerable importance. American investors hold bonds of the city of São Paulo, notes of the Brazilian Traction, Light & Power Co., and a few other Brazilian securities. The Brazil Railway, although incorporated in Maine, was practically wholly financed abroad, as were most of the Farquhar-Pearson enterprises. There is probably \$50,000,000 of American capital in Brazil, although this figure is simply an estimate."

Since then, a good deal of American money has been put into meat packing, public utilities, the coffee business, iron and manganese mines, etc., and at the end of 1920 the total American investment in Brazil may easily have been \$75,000,000. However, as in the case of Argentina, there has not yet been so much interest in this country as there has been on the west coast of South America where the mines have been more attractive. Brazil has important deposits of iron and manganese ore, but as yet they have been scarcely developed.

Chile.—The principal American investment in Chile

is in copper mines. To a smaller extent in iron mines and nitrate deposits. Up to the end of 1916 six American companies had invested \$59,000,000 in such enterprises. At the end of 1920 the same companies had invested about \$119,000,000.

Estimates of \$100,000,000 for the total investment of American capital in Chile in 1916 and \$200,000,000 in 1920 appear to be reasonable. The American investment in Chilean copper mines has been very profitable, the three great properties—Braden, Chuquicamata and Potrerillos—having proved to be worth a great deal more than has been put into them, although they have not yet begun to yield the profits that are confidently to be expected from them. However, the acquired value is reflected by the quotations for the shares that are listed on the New York Stock Exchange and some investors have realized anticipated profit by the sale of their stock.

Colombia.—The United States has put some money into gold and platinum mines, oil lands, banana lands, municipal loans, etc., in this country, but no definite figures seem to be available. Perhaps \$10,000,000 would cover everything at the end of 1916, and \$30,000,000 at the end of 1920. At the end of 1920 the United Fruit Co. reported \$2,829,649 invested in this country. On the other hand the United States owes Colombia \$25,000,000, voted by Congress in settlement of claims against Panama.

The South American Gold and Platinum Co., the the Latin-American Petroleum Co. and the Trans-Continental Oil Co. are a few of the large American companies operating in Colombia.

Ecuador.—The United States has but few invest-

ments in this country. There is one important gold mine owned by American interests, and this is the only one. There is a small American interest in Guayaquil & Quito railway. However, the total American investment in Ecuador falls somewhat short of \$5,000,000, both at the ends of 1916 and 1920, but little new capital having been invested in this country in the interval.

The Guianas.—Conjecturally, \$5,000,000 will cover the American investments in these countries at the end of 1916 and also at the end of 1920. The Aluminum Company of America is supposed to have put about \$3,000,000 into bauxite mining in Dutch Guiana and some American capitalists have invested about \$2,000,000 in gold mining on the Marowijne (Maroni) River, which runs between Dutch and French Guiana.

Paraguay.—American capital has some interests in the quebracho industry, in cattle raising, meat packing, etc. At the end of 1916 the total was small, perhaps not more than \$5,000,000. Since then the International Products Co. is understood to have put about \$15,000,000 in the country, for quebracho, cattle, and meat packing.

Peru.—According to Frederick M. Halsey, the United States had about \$50,000,000 invested in Peru in 1916, this being mainly in the copper mines, besides which there was the International Petroleum Co. and a few minor industries. In copper mines alone there was about \$30,000,000 invested in 1916 and about \$50,000,000 in 1920. At the end of the latter year \$8,000,000 was held in the form of public utility bonds. It will be reasonable to estimate the total American investment in Peru at \$50,000,000 in 1916 and at \$85,000,000 in 1920.

Uruguay.—American capital is invested in the meat packing industry of this country probably to the amount of \$10,000,000. There is believed to be also an American interest in a small railway loan made in 1915. The International Portland Cement Co., through the Uruguay Portland Cement Co., has built a cement manufacturing plant at Montevideo. Probably \$15,000,000 will cover the total American investment in Uruguay at the end of 1916 and \$20,000,000 at the end of 1920.

Venezuela.—According to Frederick M. Halsey, a fair amount of American capital had found its way to Venezuela up to 1916. The interests of the General Asphalt Co. were large, the Caribbean Petroleum Co. and other American interests were important factors in the oil development of the Republic, and there were sugar enterprises financed in the United States. American banks had recently entered the field. The total investment of American capital in Venezuela at the end of 1916 may be written conjecturally at \$10,000,000. Since then, large investments in oil lands have been made by the Tropical Oil Co. (subsidiary of the Standard Oil Co. of New Jersey), the General Asphalt Co., the Maracaibo Oil Co., and others. An estimate of \$40,000,000 for the total investment of American capital, principally in petroleum, in Venezuela at the end of 1920 is approximately correct.

CENTRAL AMERICA

Costa Rica.—According to Frederick M. Halsey, the United States in 1916 had about \$20,000,000 invested in Costa Rica. The principal American company operating in that Republic is the United Fruit Co.

There was also considerable American capital in mining and other enterprises. The investment of the United Fruit Co. alone was about \$12,800,000. At the end of 1920 the American capital in Costa Rica may be put down roughly at \$25,000,000, although the investment of the United Fruit Co. had been written down to \$8,236,004.

Guatemala.—According to Frederick M. Halsey, American capital invested in Guatemala at the end of 1916 amounted to \$12,000,000, of which \$4,750,000 had been invested by the United Fruit Co. The Southern Pacific Co. owned \$1,788,000 of the bonds of the Guatemala Central Railway. Let us estimate a total of \$12,000,000 at the end of 1916 and \$15,000,000 at the end of 1920.

Honduras.—The United Fruit Co. had invested \$7,600,000 in Honduras up to the end of 1916. At the end of 1920 this had been increased to \$13,118,066. American capital was also interested in the mines of the Republic, the most important enterprise being that of the New York & Honduras Rosario Mining Co. The latter company had \$2,300,000 invested in 1916 and \$4,400,000 in 1920. The total American investment in Honduras may be estimated at \$10,000,000 in 1916 and \$18,000,000 in 1920.

Nicaragua.—American capital has invested in railways, mines and lands in this country, and also in the National Bank of Nicaragua. Perhaps \$5,000,000 represents the total, with substantially no change from 1916 to 1920.

Panama.—At the end of 1916, according to Frederick M. Halsey, the outstanding liabilities of the Panama Government were about \$6,750,000, practically all

of which was due to the United States. The United Fruit Co. owned railways in the Republic that had cost \$3,600,000. About \$5,000,000 of American money had been invested in public utilities. The United Fruit Co. had about \$3,600,000 in lands and equipment, in addition to its railways. The total American investment in Panama at the end of 1916 may be put conservatively at \$20,000,000. This is, of course, exclusive of the investment of the American government in the Panama Canal and railway. At the end of 1920 the total American private investment in Panama may be put down roughly at \$30,000,000.

CUBA

In a statement recently issued by a special Cuban commercial mission to the United States, attention was drawn to the large amount of American capital invested in the Cuban sugar industry, in railways, and in tobacco and other branches of industry. It was estimated that altogether there was upward of \$700,000,000 of American capital invested in Cuba, whereof about \$600,000,000 was in sugar plantations and mills, this being upward of 60 per cent of the total amount in that industry. These representations would naturally be discounted in view of the fact that a principal purpose of this mission was to secure tariff concessions from the United States, wherefore a magnification of the amounts of American investments in Cuba would be politic. The investigations of this subject that I have carried on failed to disclose a total anywhere near so large.

In 1916 the sugar industry of Cuba apparently had capacity for the production of about 25,000,000 bags

per annum. About 50 per cent of the plantations and mills were owned by American corporations and individuals. One of the largest producers is the Cuba Cane Sugar Co. which has invested about \$80,000,000 in plantations, mills, equipment, etc., having a capacity for the production of about 5,000,000 bags per annum which would indicate an investment of about \$16 per bag per annum. About the beginning of 1920, at the time of the issuance of \$25,000,000 of debenture bonds, the officers of the Cuba Cane Sugar Co. stated that a little under \$100,000,000 was a conservative estimate of the value of the company's property and that it could not be duplicated except for a sum largely in excess thereof.

The balance sheet of the Cuban-American Sugar Co., Sept. 30, 1921, shows an investment of about \$36,000,000 in lands, buildings, machinery, railways, cars, etc., representing an annual capacity of about 2,000,000 bags, which shows therefore a plant investment of about \$18 per bag per annum.

These sugar companies have also a large investment of working capital in planted and growing cane, in advances to contractors, in materials, supplies and merchandise in stores, etc. This may be estimated roughly at about \$5 to \$9 per bag annum. This indicates a total capital investment at the rate of perhaps \$24 per bag per annum.

On the basis of \$24 per bag per annum the American investment in the Cuban sugar industry would stand at about \$300,000,000, as of the end of 1916. At the end of 1920, figuring in the same way, it would stand at about \$375,000,000.

Following the collapse of the Cuban sugar industry

in 1920-1921, the market value of this investment shrunk largely. For example, at the end of August, 1921, the several issues of securities of the Cuba Cane Sugar Co. were quoted at prices indicating a value of only \$25,437,500 for its whole business. On that basis the entire American investment in the Cuban sugar industry would be represented by about \$63,500,000.

It is not improbable that a good deal more than \$75,000,000 of American capital was actually put into Cuban sugar industry between 1916 and 1920. During the period of high prices for sugar the idea prevailed that anything connected with sugar production could result in nothing but profit, so that the prices of sugar properties, whether cane farms or mills, soared to the skies. Ten, twelve and even fifteen thousand dollars were paid per caballeria (about $33\frac{1}{2}$ acres) for merely planted cane, the land not being included in the transaction; and equivalently high prices were paid for mills. Quoting from an article by H. O. Neville in *The Cuba Review* of March, 1921, "The significance of this will be recognized when it is known that the cost of preparing, planting, and cultivation to harvest a caballeria of cane in 1914 in the eastern provinces of Cuba was estimated to be about \$1,200, and that even with the tremendously increased costs of all operations connected with cane planting and cultivation during 1919, a conservative estimate of the expense involved was not more than \$5,500 per caballeria."

The principal railways of Cuba are owned by the Cuba Railroad Co., the securities of which are held mainly in the United States. On June 30, 1921, the property investment of this company stood at \$57,439,753, compared with \$43,516,453 on June 30, 1916.

A considerable amount of American capital is invested in iron mines, copper mines, manganese mines and other mineral deposits in Cuba. Since 1916 there has been but little new investment in this kind of property, a total of about \$2,000,000 in iron and manganese mines being inclusive of everything. On the other hand, investments aggregating about \$9,000,000 have been abandoned. The total of American mining interests in Cuba may be put at \$27,500,000 at the end of 1916, and at \$20,000,000 at the end of 1920.

There is also a large amount of American capital in public utilities, in the tobacco business, and in the wharves and docks of Cuba. The Cuban Telephone Co. has an investment of about \$15,550,000. The United Fruit Co. has \$37,126,743 in property in the island, largely in the sugar business, but including \$6,332,700 in railways and nearly \$5,000,000 in merchandise and materials. The total American interest in Cuba may be reckoned roughly as follows:

	1916	1920
Sugar plantations and mills.....	\$300,000,000	\$375,000,000
Railways.....	45,000,000	65,000,000
Mines, chiefly iron.....	27,500,000	20,000,000
All other.....	27,500,000	65,000,000
Total.....	<u>\$400,000,000</u>	<u>\$525,000,000</u>

Without any doubt a good deal more money has gone into Cuba during the last four years than the above figures indicate, but equally without any doubt a great deal of it has been lost and drastic writing down of capital investment is necessary.

JAMAICA

Although this is a British colony, the investments of Great Britain in its enterprises are not

large. Most of the capital from outside sources has originated in the United States and Canada. The United States has become prominent through the investments of the United Fruit Co. The Atlantic Fruit Co. also has great interests in the island and there are other agricultural estates, together with forest properties, under American management. The United Fruit Co. had invested about \$3,000,000 up to the end of 1916 and \$4,423,018 up to the end of 1920. The property of the Jamaica Railway Co. stood at about \$12,500,000. Probably the total American investment in Jamaica amounted to \$25,000,000 at the end of 1916. We may assume \$30,000,000 at the end of 1920.

CANADA

The investment of American capital in Canada and Newfoundland comprises agricultural lands, timber lands, mines and industrial enterprises. There has never been any complete enumeration of the totals and probably this would be difficult to make. Besides these investments a good deal of American capital is loaned on Canadian railroad, public utility and industrial bonds.

According to Raleigh S. Rife, of the statistical department of the Guaranty Trust Co., the total of American capital invested in Canada up to the end of 1918 was \$1,272,850,000. W. G. Gates, of the Canadian Department of External Affairs, estimated the net inflow in 1919 at \$220,432,000 and in 1920 at \$325,000,000. Adding these amounts to Mr. Rife's gives a total of \$1,818,282,000. Mr. Gates' figure for the end of 1920 is \$1,800,000,000, compared with about \$600,000,000 at the outbreak of the war.

The total for the end of 1920 includes \$345,534,260 on account of outstanding government, provincial and municipal loans, leaving \$1,455,000,000 for private investments. Of this \$175,422,500 was in railroad bonds, \$83,284,000 in public utility bonds, and \$45,957,500 in industrial bonds, a total of \$304,664,000.

Ten large producing mining and metallurgical companies of American ownership, operating in Canada, had about \$106,000,000 invested in property and plant in the Dominion at the end of 1916; at the end of 1920 the same companies had about \$128,000,000. There is a good deal of American capital invested in smaller mining enterprises in Canada. It would be reasonable to figure the total investment of American capital in Canadian mines at \$150,000,000 at the end of 1916 and at \$180,000,000 at the end of 1920.

This gives us about \$500,000,000 specifically accounted for in Canada at the end of 1920, leaving about \$950,000,000 for real estate, factories, banking interests, private loans, etc. Although that figure looks rather high the available material affords no grounds for reasonable criticism, and the grand total is well authenticated. We may infer from it a grand total of about one billion dollars at the end of 1916, with \$800,000,000 outside of government, provincial and municipal loans, and use those figures, *viz.* \$800,000,000 for the end of 1916 and \$1,450,000,000 for the end of 1920.

MEXICO

The amount of the investment of American capital in Mexico is very difficult to estimate. In the main it is represented by interests in railways, lands, mines and the petroleum industry. According to a report

by the Latin-American Division of the Bureau of Foreign and Domestic Commerce, the amount of American capital invested in Mexico in 1912 was \$1,057,770,000 of which \$235,464,000 was in railway stocks and \$408,926,000 was in railway bonds, a total of \$644,390,000 in railway securities of both kinds. This would leave \$413,380,000 for other investments. Probably there was not very much change in the American investment in Mexico between 1912 and 1916, a period of political troubles which made American capital averse to putting any more money into Mexico. Nothing but the petroleum industry was thought to be worth the risk. Certainly there were no important additions to the mining investment.

The railways of Mexico were built originally by American capital. Subsequently (in 1914) they were taken over by the Mexican Government, but a good deal of American money is still loaned upon them. According to the Guaranty Trust Co. the amount of such loans outstanding, Dec. 31, 1920, was \$152,827,675. Another statement of the Mexican railroad bonds on the New York Stock Exchange, with amounts outstanding and latest market prices, is as follows:

	<i>Amount outstanding</i>	<i>Market price</i>
Mexican Cent. prior con. 5s.....	\$ 1,374,000	
Mexican Inter. R. R. prior lien 4½s, '47.....	5,850,000	
first cons. 4s, '77.....	4,206,000	22
National R. R. of Mexico prior lien 4½s, '26...	23,000,000	29¼
first cons. 4s, '51.....	69,000,000	27
National R. R. of Mexico gen. 4s, '77.....	50,748,925	27
prior lien 4½s, '57.....	84,804,115	21½
3-year notes 6s, '17.....	2,460,341	
2-year notes 6s, '15.....	26,730,000	
Pan-American R. R. first 5s, '34.....	2,003,000	
Vera Cruz & Pacific first 4½s, '34.....	7,000,000	27
Total.....	\$277,176,881	

While there has been little activity in these bonds of late, the issue most traded in on the Stock Exchange is National Railroads of Mexico prior lien 4½s, 1926. These bonds defaulted in interest July 1, 1914. Interest due Jan. 1, 1914, was paid by 3-year 6 per cent notes, due Jan. 1, 1917, which subsequently defaulted.

Our investment in Mexican railway bonds may be put down roughly at \$150,000,000 at the end of 1916 and \$75,000,000 at the end of 1920.

Roy H. Flamm of the Latin American Division of the U. S. Department of Commerce estimated that on June 30, 1920, the capital invested in the petroleum industry of Mexico stood at about \$300,000,000, whereof the American proportion was about 70 per cent, the remainder being ascribable to British and Dutch capital. According to these data the American investment in the Mexican petroleum industry may be put at \$200,000,000. There are no available data for the position at the end of 1916. I put that down conjecturally at \$100,000,000.

The total American investment in Mexico outside of Government bonds (other than those of the railways which are controlled by the Government) may be put down approximately as follows:

	1916	1920
Railways.....	\$150,000,000	\$ 75,000,000
Petroleum industry.....	100,000,000	200,000,000
All others*.....	500,000,000	525,000,000
	\$750,000,000	\$800,000,000

*Includes mines, metallurgical works, factories, lands, etc.

The totals for Mexico are much lower than what is commonly estimated for that country and are below the estimate of the Bureau of Foreign and Domestic

Commerce for 1912.¹ However, it is an unfortunate fact that since 1912 the value of our investments in Mexico has shrunk seriously, and notwithstanding what we have put into the Mexican petroleum industry I am inclined to regard my estimates for 1916 and 1920 as too high rather than too low. It is to be feared, moreover, that we stand to incur a heavy loss on our investment in Mexican petroleum.²

I may refer here to the external obligations of the Mexican Government, which have not been included in the previous table of foreign funded indebtedness. The outstanding principal of these is about \$190,000,000, while defaulted interest that has accumulated brings the total to about \$240,000,000. Mexican 5 per cent bonds sold at 40 early in 1921, but late in the summer rose to 53.

EUROPEAN COUNTRIES

Although the greater part of America's foreign investment is in Canada, Mexico, Cuba and South America, the amount that has been put into European countries and in the Orient is not inconsiderable. These investments are diverse and difficult of enumeration. In general, they are of the nature of manufactur-

¹ Exaggerated ideas respecting the amount of American investment in Mexican mines are prevalent. In fact the total investment of the four principal American mining and metallurgical companies in Mexico at the present time is not more than \$70,000,000.

² Ralph Arnold, who is a high authority on the petroleum industry, said in an article in *Mining and Metallurgy*, for November, 1921, that it is doubtful if a single company in the Mexican oilfields, which soon will be exhausted, will prove to have operated at an ultimate profit; that over 2,300 km. of pipe lines have been installed, some of which have barely been greased by the fluid; that hundreds of great storage tanks have been built, many of which never held a barrel of oil; and that in brief countless millions of American dollars have been invested, which never can be amortized.

ing establishments and distributing systems. Thus, such concerns as the International Harvester Co., Singer Sewing Machine Co., and Ford Motor Co. manufacture extensively abroad. The petroleum companies have instituted extensive distributing systems. The Standard Oil Co. has gone deeply into the production of petroleum in Rumania and other countries. The United States Rubber Co. has invested heavily in rubber plantations. Marine companies have large sums in ships sailing under foreign flags, and in wharves and docks in foreign ports.

At present we can do no more than form a rough idea of the aggregate of these investments. They have increased since the Armistice and without doubt are destined to increase a good deal more. Acquisition by us of property in Europe, or property in other countries previously owned by Europeans, is inevitable. Thus, we have already obtained important interests in South African gold and diamond mines. On the other hand we lost a good deal of property in Germany, Austria, and Rumania during the war, and in Russia after the revolution. Most of our industrial companies that had such investments have written them off their books.

Belgium.—At the end of 1920 American investors held \$11,000,000 of Belgian industrial bonds, especially of Solvay & Cie. and Minerva Motors. Royal Dutch Shell shares to the amount of \$7,158,000 had been purchased. We have also bought shares of the Shell Transport and Trading Co., and have acquired interests in Belgian banks. The total American investment in Belgian property may be estimated at \$20,000,000 against nothing before the war.

France.—Bonds of the Midi Railroad were placed in the United States in 1920 to the amount of \$3,250,000. There are numerous American industrial investments in France, some of which are of considerable magnitude, but I can do no better than guess the total as being something like \$100,000,000.

Germany.—American owned property sequestered in Germany has been estimated at \$191,147,346. The chances are that claims for such property are exaggerated. The chances are also that so long a time is likely to elapse before anything can be collected on this account that it might as well be written off. Recently the balance of trade has indicated that a good deal of American capital has been going into Germany.

Great Britain.—Perhaps the largest investment of American capital in Great Britain is in ships sailing under the British flag. Along with this there is considerable money in docks and warehouses. The International Mercantile Marine Co. is the chief example of investment of this kind. About 93 per cent of the stock of this company is held by Americans.

The International Mercantile Marine Co. owns 1,026,429 tons of shipping, whereof about 85 per cent flies the British flag. The stock market, according to quotations at the middle of 1921, put a value of about \$30 per ton on this shipping. The average cost of its ships before the war was about \$100 per ton. The company has a working capital of \$35,208,192 and a reserve of \$23,000,000 for shipping replacement. The greater part of these holdings are in England.

Besides the American investment in British ships, many American manufacturing companies own factories in Great Britain, or hold the capital stock of subsidiaries

that manufacture there. Thus the Ford Motor Co., the Singer Sewing Machine Co., the Westinghouse Electric and Manufacturing Co., etc. The American petroleum refining companies own and control extensive plants for the distribution of their products.

I put the total American investment in Great Britain conjecturally at \$250,000,000 at the end of 1916 and at \$300,000,000 for the end of 1920.

OTHER COUNTRIES

During 1920 there were taken in the United States 60,000 shares of Rand Mines, Ltd., at \$2,400,000 and 80,000 shares of De Beers Consolidated at \$3,760,000. Other gold and diamond mining shares bring the total of American investment in South Africa up to about \$15,000,000.

The United States Rubber Co. has about 117,000 acres of rubber land, the Goodyear Tire and Rubber Co. about 20,000 acres and the Continental Co. about 20,000 acres on the Island of Sumatra; and the Manhattan Rubber Manufacturing Co. has about 2,000 acres in Java. The investment of money in these lands and plantations has been approximately \$15,000,000.

The American meat packers, especially Armour and Swift, have interests in Australia and New Zealand. The Rima Gold Dredging Co. has put about \$750,000 into gold mining in New Zealand. Altogether American capital may have \$5,000,000 invested in Australia and New Zealand.

There is a rather large American investment in China, chiefly mercantile. According to the *New York Herald* 136 American concerns were doing business in China in 1914, while in 1920 the number was upward of 400.

Apparently Chinese private bonds are held by American interests to a considerable extent. There is no accurate method of estimating the aggregate amount of American investment in China. It may possibly have been as large as \$10,000,000 at the end of 1916 and \$20,000,000 at the end of 1920, but these figures are purely conjectural.

SUMMARY OF COMMERCIAL INVESTMENTS IN FOREIGN COUNTRIES

Although the data respecting American commercial investments in many of the foreign countries is fragmentary and unsatisfactory, we are able to form a fairly good idea of what there is in Canada, Mexico, Cuba, Chile and Peru, which constitutes the bulk of what we have put abroad. Even if there be huge errors in the conjectures as to other countries, the main conclusion at which we hope to arrive will not be seriously invalidated. If it be assumed that the total of these investments was about three billion dollars at the end of 1916 and four billion dollars at the end of 1920, divided substantially as shown in the accompanying tables, it will not be unreasonable, and probably not very far out of the way. If anything these totals are under-estimated rather than over-estimated.

The data show that outside of Canada, where industrial conditions are similar to our own, American capital has not been very fortunate in its major investments in foreign commercial enterprises and speculations. We made some money in mining and smelting in Mexico and in the railways of that country previous to 1914, but since then we have lost a good deal on Mexican railway bonds and in the physical destruction

of miscellaneous property throughout the republic and we now stand to lose on the petroleum investment, which we thought was going to be very profitable to us. We have experienced stupendous losses in the Cuban sugar industry and minor losses in industrial investments in Germany, Austria, Russia and Rumania. Our banking ventures in South America have been unlucky. In our speculation in foreign internal bonds and foreign currencies we stand to lose upward of \$600,000,000. Out of these bad investments something may be salvaged, but at the best even partial reimbursement is likely to be long delayed. Our most profitable foreign investment has been in the copper mines of Peru and Chile, though as yet but relatively little income has been derived from them and our profits are still matters of expectation rather than realization.

SUMMARY OF AMERICAN COMMERCIAL INVESTMENTS IN FOREIGN COUNTRIES

	1916	1920
Argentina.....	\$ 30,000,000	\$ 40,000,000
Bolivia.....	5,000,000	15,000,000
Brazil.....	50,000,000	75,000,000
Chile.....	100,000,000	200,000,000
Colombia.....	10,000,000	30,000,000
Ecuador.....	5,000,000	5,000,000
Guianas.....	5,000,000	5,000,000
Paraguay.....	5,000,000	20,000,000
Peru.....	50,000,000	85,000,000
Uruguay.....	15,000,000	20,000,000
Venezuela.....	10,000,000	40,000,000
	<hr/>	<hr/>
	\$ 285,000,000	\$ 535,000,000
Costa Rica.....	20,000,000	25,000,000
Guatemala.....	12,000,000	15,000,000
Honduras.....	10,000,000	18,000,000
Nicaragua.....	5,000,000	5,000,000
Panama.....	20,000,000	30,000,000
	<hr/>	<hr/>
	\$ 77,000,000	\$ 93,000,000

Cuba.....	400,000,000	525,000,000
Jamaica.....	25,000,000	30,000,000
	<hr/>	<hr/>
	\$ 425,000,000	\$ 555,000,000
Canada.....	800,000,000	1,450,000,000
Mexico.....	750,000,000	800,000,000
	<hr/>	<hr/>
	\$1,550,000,000	\$3,250,000,000
Belgium.....	<i>nil</i>	20,000,000
France.....	100,000,000	100,000,000
Germany.....	190,000,000	50,000,000
Great Britain.....	250,000,000	300,000,000
Russia.....	50,000,000	<i>nil</i>
Other countries.....	50,000,000	75,000,000
South Africa.....	<i>nil</i>	15,000,000
	<hr/>	<hr/>
	\$ 640,000,000	\$ 560,000,000
South America.....	\$ 285,000,000	\$ 535,000,000
Central America.....	77,000,000	93,000,000
Cuba and Jamaica.....	425,000,000	555,000,000
Canada.....	800,000,000	1,450,000,000
Mexico.....	750,000,000	800,000,000
Europe, etc.....	640,000,000	560,000,000
	<hr/>	<hr/>
Totals.....	\$2,977,000,000	\$3,993,000,000

The debts and credit of our external position, as heretofore reviewed and considered, may now be summarized as follows:

SUMMARY OF EXTERNAL WEALTH		
	<i>Credits</i>	
	1916	1920
Foreign obligations to U. S. Government..	\$.....	\$10,141,267,585
Accrued interest due.....	.....	945,000,000
Due from Germany.....	.....	250,000,000
Funded foreign indebtedness to U. S.....	1,750,000,000	1,800,000,000
Unfunded foreign indebtedness to U. S.....	.....	2,900,000,000
Foreign internals, etc.....	100,000,000	600,000,000
Commercial investments abroad.....	2,977,000,000	3,993,000,000
	<hr/>	<hr/>
Totals.....	\$4,827,000,000	\$20,629,267,585
	<i>Debits</i>	
American securities owned abroad.....	\$4,500,000,000	\$ 2,500,000,000

Our credits have increased in four years by about 15.8 billion dollars. Our debits have decreased by about two billion. We have, therefore, gained apparently about 17.8 billion dollars in our external position, or about 17.2, if we write off the foreign internals. I say that we have gained this "apparently," for there is doubt whether we can collect all that is owed to us. There is indeed a question as to whether or not we ought to try to collect it; whether or not we should not cancel it in part at least and write it off as a cost of the war. However, discussion of this will best be reserved until the whole situation has been presented.

CHAPTER IV

THE NATIONAL WEALTH—THE INTERNAL POSITION

There is a common idea that bank deposits, especially savings bank deposits, furnish a measure or at least an indication of the national wealth. They may, or they may not. There is no fundamental connection between the two things. Money that is put into the savings banks represents the accumulations of some people. The savings banks must invest it in some way. It is invested largely in mortgages on real estate. If the mortgage loans are utilized for new building the savings are translated into terms of fixed property. The final expression of the savings of the people as a whole is in fact the buildings, railways, etc., that they have accumulated. It may be, however, that the man who mortgages his house does not utilize the money for the improvement of his property, or the acquisition of another house, but instead thereof buys an automobile which he wears out during the next five years. If in the meanwhile, he has not saved enough to pay off the mortgage on his house he may eventually lose the house and then have neither house nor automobile. Savings bank deposits may, therefore, indicate no more than the aggrandizement of one class of people at the expense of others; and another class may be impoverishing itself more rapidly than the thrifty is saving.

Similarly some people may be rich in their ownership

of Liberty and Victory bonds, but no one would imagine that those add anything to the wealth of the nation as a whole. On the contrary the very purpose of those bond issues was to facilitate the waste of wealth in warfare. The persons, who in subscribing for the bonds loaned their own credit to the Government obtained through the bonds a mortgage on all the wealth of the country, or rather a lien on the future earnings of all the people.

It is appropriate here to explain the nature of the Liberty bonds and Victory notes to which the people of the United States subscribed during the war. These were not direct drafts on the wealth of the country, for as will presently be shown the wealth of the country consists of lands, houses, railways, etc., and no one can give a part of his house or his cattle. In fact the whole thing was a credit operation. Through his credit the subscriber obtained a means of payment whereby he paid for his bond. This credit might have been based in part on existing wealth and in part upon the prospect of new savings, which meant the creation of new wealth. As between the Government and the subscriber the Government obtained the command over goods which was surrendered by the subscriber, the Government entering into an obligation to return this in the future. The position of the American debt, as an internal affair, is that a corporation subscribing for \$1,000,000 of Liberty bonds credited the nation with that number of dollars, taking the national bonds in return. Possibly it had to mortgage its physical property in order to do this. The Government converted these credits into the form of circulating medium, with which producers were paid for their raw materials, and

labor for its work. Many persons entertaining the delusion that they were enjoying newly created wealth entered upon a course of profligacy in living. In fact they were squandering in advance what they must earn in the future, and in so far as the physical property of the country was allowed to deteriorate they were squandering also savings of the past, living on the principal of the country, so to speak. Eventually the credits given by the subscribers for Liberty bonds must be cancelled. This can be done only by work and thrift.

Bank deposits and internal loans are, therefore, affairs of the people among themselves and do not appear at all in an inventory of the national wealth. The only things considered as money that appear in such an inventory are gold and silver. All the rest is real estate, live stock, machinery, railways, etc., and stocks of goods. But a relatively small portion of the total is of a nature to support the people if they should cease working, and this—chiefly the accumulated stock of goods—would support them but a little while. What then comprises the internal wealth of the United States and what does it amount to?

Let it be said at the outset that no exact valuation of the wealth of the United States can be made. Even the reports of the Bureau of the Census on this subject have been to a very large extent conjectural. Every Director of the Census, from General Walker down, has recommended that the statistics of capital be omitted from the census of manufactures. W. M. Steuart, the present Director of the Census, has expressed to me the opinion that he does not believe it is possible, in a general census of manufactures, to

obtain correct figures on this subject. The same ideas might reasonably be considered to obtain with respect to census enumeration of other branches of the national wealth. It is easy to see why this should be so. When it is left to thousands of people to fill out the blanks of questionnaires on this subject, there are innumerable chances of misunderstanding, differences of opinion, self deception, etc., that operate to prevent correctness of totals, which may happen to be correct only by accident.

Nevertheless, given substantially correct physical data it is possible to arrive at fairly good approximations of the national wealth in many particulars by the application of engineering methods. The consulting engineer who is employed to value the property of a corporation pays but little attention to book values. He goes over the books to see what the corporation thinks it has and then examines its properties to ascertain what really exists, and finally he puts his own valuations upon what exists according to the economic standards of the time or what he foresees. This sometimes involved either the writing up of property, because of enhancement of value, or its writing down because of impairment. Writing down may not be based merely upon deterioration. Property that is in perfect physical condition may perhaps lose all value by reason of obsolescence; or it may lose value because of the existence of more of that kind of property than is required, with the result of there being no further use for the service of some of it. Economically property for which there is no use may have no value except what may result from the scrapping and salvaging of its materials. The percentage of recovery under such

circumstances is usually very small indeed, for a large part of the cost of any property is represented by the labor that has been put into its construction and never can be recovered.

I have attempted to make comparative inventories of the national wealth at the ends of 1916 and 1920 according to the above principles. I have not been able to conform to them absolutely, for in many cases it has been necessary to make use of the only available data without looking very closely into the matter of its validity. I had previously, in an economic study published in the *Annalist* of Sept. 13, 20 and 27, 1920, made such an estimate for 1916. This afforded a basis for the present investigation, as a result of which many of the figures previously given for 1916 have been revised. In computing values for 1920 I have conformed to the hypothesis that pre-war figures are the only safe bases for present calculations, unless there be positive indications that higher or lower figures will obtain for sound economic reasons. Thus, the value of ships is computed at a lower figure per ton than prevailed previous to the war, for the reason that there is now a great surplus of ships and market prices are lower on that account and probably will so continue for a long time. On the other hand agricultural land is becoming increasingly scarce and its value per acre is enhancing by virtue of scarcity. In the main I think that my estimates have eliminated most of the influences of inflation, but there are some figures that are open to suspicion. Following the summarized tabulation there are discussions showing in detail how the several figures were determined and illuminating some of the main industrial features.

The essence of my inventories is, therefore, the counting of things rather than the ephemeral valuations that are put upon them. Obviously it is impossible to add up the number of ships, railway cars, etc. and obtain any total that means anything. Consequently in order to arrive at totals reflecting physical quantities it is necessary to translate the latter into terms of a common denominator, and for such a common denominator I use the dollar, *i.e.*, the values, of 1913, unless there be some sound reason, as in the cases of ships and agricultural land, to use different values. Even so, such different values are supposed to be based upon the dollar of 1913. My main purpose is to develop an expression of the physical wealth of the country. This must be borne distinctly in mind in considering the analyses that follow. These explanations and qualifications, however, pertain only to the estimation of the internal wealth. The estimation of the external wealth obviously is a totalization of the dollars of the years when invested, and manifestly includes the effects of inflated prices. An understanding of this difference may lead us to a consideration of the subject of whether as a matter not only of policy, but also of equity, the foreign obligations that have accrued to us on account of the war ought not to be written down.

My inventory for 1916 is supposed to represent the position at the end of that year. The inventory for 1920 accounts for the situation at various times between June 30, 1920, and June 30, 1921, but generally the assets are reckoned as of Dec. 31, 1920. It was impossible to survey the situation of everything as of the same date. The inventory is confined to physical

PHYSICAL PROPERTY IN THE UNITED STATES

	1916	1920
Gold.....	\$ 2,450,516,328	\$ 3,223,351,644
Silver.....	763,218,469	600,000,000
Farm lands.....	52,398,000,000	54,903,586,200
Farm buildings.....	12,160,000,000	11,287,500,000
Other land.....	13,800,000,000	13,800,000,000
Other buildings.....	68,500,000,000	65,120,000,000
Tax exempt property.....	14,685,000,000	15,000,000,000
Wharves and drydocks.....	500,000,000	500,000,000
Mines.....	3,880,000,000	3,269,000,000
Farming implements.....	1,600,000,000	1,773,750,000
Live stock.....	7,679,472,000	7,070,189,000
Railways, steam.....	24,500,000,000	25,500,000,000
Railways, electric.....	5,361,734,000	4,000,000,000
Express companies.....	38,597,253	34,691,199
Manufacturing machinery and tools..	14,500,000,000	15,500,000,000
Meat packing plants.....	250,000,000	350,000,000
Telephone and telegraphs.....	1,475,000,000	1,800,000,000
Pullman cars.....	130,000,000	150,000,000
Tank cars.....	63,000,000	180,000,000
Petroleum pipe lines.....	400,000,000	608,000,000
Petroleum tankage.....	50,000,000	60,000,000
Automobiles.....	1,756,498,000	4,594,450,000
Light and power plants.....	2,900,000,000	4,058,000,000
Gas lighting plants.....	1,250,000,000	1,500,000,000
Waterworks, privately owned.....	300,000,000	310,000,000
Highways.....	600,000,000	750,000,000
Canals.....	1,000,000,000	1,000,000,000
Irrigation enterprises.....	370,000,000	375,000,000
Ships.....	676,000,000	522,500,000
Yachts and motor boats.....	40,000,000	40,000,000
Furniture, carriages, etc.....	9,154,980,000	10,600,000,000
Clothing, jewelry, etc.....	4,577,490,000	5,300,000,000
Stocks of goods.....	20,600,000,000	19,000,000,000
Totals.....	\$268,409,506,050	\$272,780,018,043

property in the continental United States, *i.e.*, the value of our possessions in Porto Rico, Hawaii, etc., is not included. Also not included are the values of our navy, fortifications and military equipment; nor of such public works as river and harbor improvements.

Brigadier-General Mitchell, assistant chief of Army Air Service, in report on recent bombing tests by army and navy, criticized the present coast defense system asserting that at least 1.87 billion dollars has gone to create coast defence that is little more than useless against hostile aircraft and sea forces. The investment in the American Navy as of June 30, 1920, was \$2,911,480,543, divided as follows: Ships, \$1,292,329,530; stations, \$533,682,737; stores of supplies, \$1,085,468,276.

My inventories of physical wealth show a gain in the aggregate of a little more than four billion dollars from the end of 1916 to the end of 1920. Per person of population, however, the average decreased from \$2,638 to \$2,573. These figures take no account of our foreign credits, which are omitted owing to the uncertainty of their realization. Attention may here be drawn, moreover, to a subject that is discussed at more length, in a following chapter, *viz.*, that the increase in inventory was largely in consumable goods—furniture, clothing, automobiles, etc.—rather than in capital goods. Finally, there is considerable ground for the suspicion that “stocks of goods,” at the end of 1920 are over-estimated. For these reasons, although the aggregate inventories show a relatively small gain in the physical wealth during this period, I shall be found speaking in the subsequent pages as if there had been no increase in the wealth of the American people since 1916, but rather an impairment thereof.

For purpose of comparison is given the following table of the pre-war wealth of European countries, which is generally accepted.

Great Britain and Ireland.....	\$130,000,000,000
German Empire.....	65,000,000,000
France.....	50,000,000,000
Russia.....	40,000,000,000
Austria-Hungary.....	25,000,000,000
Italy.....	20,000,000,000
Belgium.....	9,000,000,000

Probably the above figures are more or less conjectural in every case. Economic studies on this subject have not as yet been carefully developed anywhere. Some further data on this subject are given in Appendix D.

BULLION

The estimated stock of gold and silver in the United States, on June 30 of each year, as reported by the Director of the Mint, was as follows:

	<i>Gold</i>	<i>Silver</i>
1913	\$1,866,619,157	\$745,585,964
1914	1,871,611,723	753,563,709
1915	1,973,330,201	758,039,421
1916	2,450,516,328	763,218,469
1917	3,018,964,392	772,908,391
1918	3,075,339,748	745,747,094
1919	3,112,320,547	568,329,597
1920	2,707,866,274	548,938,429
1921	3,223,351,644	*600,000,000

* Estimated.

It appears from the above table that from June 30, 1913 to June 30, 1916 we gained about \$600,000,000 in gold. Up to June 30, 1919 we gained about \$600,000,000 more, but at the middle of 1920 we had only about \$250,000,000 more than at the middle of 1916. Between the middle of 1920 and that of 1921, however, we gained more than \$500,000,000.

We lost silver in 1918 owing to the surrender of a large quantity to Great Britain for use in India as a war

measure. Since about the middle of 1920 the quantity that was taken from the Treasury hoard has been in process of replacement by the purchase of the silver produced by American mines.¹

FARMS

For the number, extent and value of the farms of the United States there are available elaborate statistics of both the Department of Agriculture and the Bureau of the Census. Yet in spite of this wealth of material proper use of it can be made for the present purpose only after close scrutiny and analysis.

In 1916 the agricultural land of the United States, according to the data communicated to me by the Department of Agriculture, comprised 900,000,000 acres. The number of farms was about 6,400,000, this being estimated by interpolation between the census figures for 1910 and 1920. Inasmuch as the increase in number during that period was small, any error in this estimation will be insignificant.

On Jan. 1, 1920, according to the Census, there were 6,450,000 farms, comprising 955,676,000 acres of land. The improved acreage was 506,982,000, which was 53 per cent of the total. The percentage of improved land in 1910 was 54.4. There having been but relatively little change in this respect during the last 10 years, it will be near enough to estimate the proportion of improved lands in 1916 at 53 per cent. The average value of the improved agricultural land in 1916, according to a communication to me from the Department of Agriculture, was \$69.45 per acre; of the unimproved

¹ For a full explanation of this matter see C. F. Kelley in *Mining and Metallurgy*, November, 1921.

land, \$45.55. The average value of all lands, improved and unimproved, was therefore \$58.22.

According to the Bureau of the Census the total value of all the agricultural land as of Jan. 1, 1920, was \$54,903,453,925, which works out to an average of \$57.45 per acre, or a little less than what the Department of Agriculture had estimated in 1916.

The great totals quoted from the last census, which loom very large in comparison with the totals for 1910 have been characterized as reflecting the results of inflation. I do not think that is so, for farming land values had been steadily increasing previous to the war, which was a consequence of the natural increase that had been taking place through scarcity and growing population. Confirmation of this view is to be found in the fact that the census average for Jan. 1, 1920, is a little lower than the estimate of the Department of Agriculture for 1916, which estimate was made at a time before inflation had become a prominent factor. On this subject, George E. Roberts, Vice-president, National City Bank, recently said the following:

“The population of the world is steadily increasing, and the best and most available lands of this continent and of all continents are occupied. We have come nowhere near the limits of food production in this country, but we have come to the end of the cheap and easy increase. The free lands are gone, the cheap lands are gone, and the increase of the future must come from lands that require considerable investment of capital for irrigation, for drainage, for clearing, and by more scientific methods of culture.

“It is in competition with lands of that character that the lands of the Middle West have gone to \$200

and \$300 per acre. In the 10 years from 1900 to 1910 the average value per acre of all the farming lands in one Middle Western state, exclusive of buildings, more than doubled, according to the census, and then from 1910 to 1920 they more than doubled again.

“They more than quadrupled from 1900 to 1920—an average enhancement of more than 10 per cent per annum for 20 years. That is an extraordinary record. It is not strange that with such a rapid advance there should be some speculation, and that some persons should operate upon narrow margins, or that there should be some reactions and individual losses. Those developments happen in the stock market, in the grain market, and wherever there is speculation. They are incidental to a rapid movement of prices.”

It is questionable in my mind whether impoverishment of the soil did not cause the land that averaged \$58.22 per acre in 1916 to be physically worth less than that in 1920. The soil of the country is constantly being washed away by meteorological agents, as witness the enormous volume of mud that is discharged annually into the Gulf of Mexico by the Mississippi River, and fertility is impaired by the extraction of potash, phosphorus, etc., by growing crops without adequate replacement. I read recently in a financial paper the comments of a factor in the fertilizer industry to the effect that “there are evidences now coming into view that the present growing cotton crop is showing the effect of under-fertilization. It will not be overlooked that within the present fertilizer consuming zone of the country agricultural production has reached its practical maximum except through the use of more fertilizer. It is probable that the fertilizer consumption

of the country reached its low ebb during 1920-1921 crop planting seasons.

“Large sections of agricultural belts in this country where fertilizers are used need plant food badly. The low price of cotton has actually brought about some diversification of crops in the belt, which in itself is beneficial to the soil, but cotton like tobacco demands rich soil, and mere diversification for one year will hardly take the place of fertilizers. For two years the South has not been using sufficient plant food. About two-thirds of the country’s fertilizer output goes to cotton and tobacco, because these plants take so much out of the soil. In 1921 Mississippi and Arkansas took only 27 per cent of the previous year’s tonnage. The Carolinas, the greatest fertilizer consuming section of the country, took about 50 per cent of last year’s shipments, and Georgia, the next largest consumer of plant food took but 554,809 tons, against 1,082,672 in 1920.”

With regard to farm buildings the census data are much less satisfactory than for land values. For 1910 the average figured for all buildings was \$994 per farm, which strikes me as being ridiculously low. As of Jan. 1, 1920, the average per farm is computed at \$1,773, which does not look any too high. In the Northeastern and Middle Western states the value of the buildings on an operated farm is a great deal more than \$1,800. In the South and Far West there are a good many farms that are worked with but few buildings, and those of inferior character. Even so, I can not but view the census figures as being too low. However, while rejecting them, I can not substitute anything better except by what is largely guess work.

Estimates of \$1,900 per farm for the buildings as they stood in 1916 and \$1,750 per farm for 1920 seem reasonable and conservative. I estimate the value of the buildings at a lower figure in 1920 than in 1916 for the reason that such property has notoriously been neglected owing to the extravagant cost of keeping it in good repair. I have estimated a deterioration of about 8 per cent from 1916 to 1920, or about 2 per cent per annum for the period of 4 years. I do not think that this is any too much.

It is probable also that the condition of fences, ditches, etc., that constitute a part in the value of improved farm land, suffered deterioration between 1916 and 1921. With the high rates prevailing for agricultural labor, the farmer, like other people, was disposed to let these things run down to the point where replacement or maintenance were absolutely necessary. Giving due consideration to such deterioration, it will in no way be irrational to estimate the value of the farm lands in 1916 at \$58.22 as reckoned by the Department of Agriculture and at \$57.45 in 1920 as reported by the census. Upon these premises the valuations of the farms of the country, not including tools, machinery, live stock, etc., which will appear under separate headings, may be developed as follows:

1916

900,000,000 acres land at \$58.22.....	\$52,398,000,000
6,400,000 sets of farm buildings at \$1,900.....	12,160,000,000
Total.....	\$64,558,000,000

1920

955,676,000 acres land at \$57.45.....	\$54,903,586,200
6,450,000 sets of farm buildings at \$1,750.....	11,287,500,000
Total.....	\$66,191,086,200

URBAN REAL ESTATE

The census estimate for all real estate in 1912 was \$98,362,813,569 for property taxed, and \$12,313,519,502 for property exempt, a total of \$110,676,333,071. Apparently the census estimate was based upon local assessments for taxation purposes in the several states, the figures being written up to conjectural real values. Thus a table in "Estimated Valuation of the National Wealth, 1850-1912," gives the percentages of assessed valuations with reference to true values, ranging from 11.7 per cent in Iowa to 100 per cent in New Hampshire and Wyoming. The value of tax exempt property was estimated at 12½ per cent of the property taxed, there being good evidence to support that figure. With regard to property taxed, continuance of the ratio of increase from 1904 to 1912 as estimated by the census, would give a total of about \$135,000,000 for 1916. However, that figure would manifestly be too low, and it is probable that the census figure for 1912 was itself too low, as will presently be set forth.

The total value of the farms of the United States in 1910 was given by the census at about 34.8 billion dollars. Upon the same basis we may conjecture that farm value in 1912 would have been reckoned at about 40 billion dollars, which would leave about 58 billion dollars for taxed real estate of all other kinds. These figures do not match with logical approaches of another kind.

In 1916 the population of the United States was about 101,722,000 people. There are various figures used to express the probable ratio between the total population and the number of families and that there

should be wide variations is but natural in view of the differences among the definitions of what constitutes the family. An economic definition of the family is the group of persons who derive their support from one income. Conforming to that definition, Dr. W. I. King estimates the ratio of total population to the number of families as 3.3:1, which would indicate about 30,800,000 families in 1916. A ratio commonly used is 4:1, which would indicate about 25,400,000 families in 1916. The New York Tenement House Department reckons four persons per apartment.¹ Using the latter and lower figure I may estimate 25,400,000 houses and apartments occupied at that time, whereof about 6,400,000 were on farms and 19,000,000 were used by other people. Under normal conditions there is a surplus of houses and properly so. There is a definite figure for the position in this respect in 1916 in the statistics of the Tenement House Department of the City of New York, which shows that 5.6 per cent of the apartments of the metropolis were idle at that time. Assuming 5 per cent for the whole country, the total number of urban houses and apartments in 1916 may be reasonably estimated at 20,000,000.

The population of the country up to 1916 was increasing at the rate of 1,200,000 to 1,600,000 per annum, which would indicate the need for somewhere from 300,000 to 400,000 new houses and apartments annually, substantially wholly in the towns and cities, for as has been previously pointed out the agricultural population has not been increasing materially in

¹ The Bureau of the Census has reported an average of 4.3 persons to a family and 5.1 to a dwelling as of Jan. 1, 1920. These data are of no value. An entire apartment house, although the home of many families, constitutes only one dwelling in the census classification.

recent years. Thomas S. Holden, statistician of the F. W. Dodge Co., has informed me that census figures show that over a period of 25 years the average annual residential construction was 310,000 "dwellings." The American Telephone and Telegraph Co., which has made careful studies of the subject in order to forecast and provide for its plant extensions, estimates a normal building of about 400,000 new houses annually.

Statistics of the F. W. Dodge Co. indicate an average of about 2,200 sq. ft. of floor space per building. Previous to the war the normal annual construction was about 700,000,000 sq. ft. of floor space for residential purposes and about 300,000,000 sq. ft. for industrial, mercantile and all other classes of buildings, exclusive of public works. The average cost of building construction was about \$1.60 per square foot, indicating a total annual investment of about 1.6 billion dollars in new buildings. These statistics, which may be considered as being exclusive of construction on farms, are probably understatements rather than overstatements, and bearing this in mind the total figure is not out of harmony with the pre-war estimate of Sir George Paish that the United States put annually about two billion dollars into new buildings.

The 20,000,000 houses and apartments available for use by people other than farmers in 1916 may be estimated as having cost an average of \$3,500. They were, of course, of widely variable ages and degrees of upkeep, and their physical value was less than their cost. How much less, nobody can do better than conjecture. If I put down the average value at \$2,400, I shall not be extravagant. Nor shall I be otherwise than conservative if I write the value of the

real estate on which the houses stand at 20 per cent of the value of the houses themselves.

Making the above assumptions, the total value of the houses and apartments of the country, other than on farms, in 1916 was about 48 billion dollars, and of the land on which they stood, about 9.6 billion dollars; a grand total of 57.6 billion dollars. Applying the figures of new construction in recent pre-war years, the residential buildings were about 70 per cent of the total of all buildings. The grand total for all urban buildings and real estate would therefore come to about 82.3 billion dollars, of which about 68.5 billion dollars was for buildings and 13.8 billion dollars for land. This was the position in 1916. It remains now to examine the position in 1920.

Up to 1916, and including that year, the annual building construction of the United States was about one billion square feet, costing about \$1.60 per square foot on the average. In 1916, however, the average cost was about \$1.80 per square foot. During the four years, 1917-1920, the building amounted to only a little more than two billion square feet. At \$1.80 per square foot, the 1916 price, the addition to buildings would come to about 3.6 billion dollars, indicating a total of about 72.1 billion dollars for the country, if there were no deductions to be made. Unfortunately there are some very important deductions to be made. In the first place there is the annual fire loss, which by the National Board of Fire Underwriters has been reported as follows:

1917.....	\$ 231,628,040
1918.....	283,103,101
1919.....	256,432,319
1920 (estimated).....	420,000,000
Total.....	<u>\$1,200,163,460</u>

The above table shows total fire loss in four years of approximately 1.2 billion dollars. According to the National Board of Fire Underwriters 25 per cent should be added to their figures to cover losses not reported to its actuarial bureau. Making this allowance the total loss by fire in the last four years may be estimated at 1.5 billion dollars.

An ordinary allowance for the depreciation of buildings is 2 per cent per annum. On a total valuation of 68.5 billion dollars for such property in the United States the annual depreciation would be 1.37 billion dollars; for four years a total of 5.48 billion dollars. It is probable that depreciation during the last four years has been greater than that, for it is well known that repairs and renewals have been seriously neglected.

Anyhow it is evident that a total loss by fire, by deterioration and by obsolescence since 1916 is reasonably estimated at 6.98 billion dollars, while new construction has amounted to only 3.6 billion dollars, showing an impairment of our real estate plant to the extent of 3.38 billion dollars. If the taxed real estate other than farms was worth 82.3 billion dollars in 1916 its value in 1920 was only 78.92 billion dollars. This does not, of course, take cognizance of "writing up" of values on the basis of transactions that in themselves reflect the scarcity of houses. If houses should become more scarce their market value would go even higher, but it is obvious that no such figuring would add anything to the wealth of the country. The actual condition would be just the reverse.

REAL ESTATE TAX EXEMPT

Summarizing the previous estimates for land and buildings, agricultural and urban, we have the following:

<i>Description</i>	1916	1920
Farm lands	\$ 52,398,000,000	\$ 54,903,586,200
Farm buildings.....	12,160,000,000	11,287,500,000
Urban land	13,800,000,000	13,800,000,000
Urban buildings.....	68,500,000,000	65,120,000,000
	<hr/>	<hr/>
Total taxed.....	\$146,858,000,000	\$145,111,086,200
Tax exempt.....	14,685,800,000	15,000,000,000
	<hr/>	<hr/>
Grand total.....	\$161,543,800,000	\$160,111,086,200

I have estimated the value of tax exempt property at 10 per cent of the value of the property taxed in 1916, instead of using the census factor of 12½ per cent. If the census estimates for property taxed are too low, as I think, the chances are that its ratio for property exempt is too high, for such property—public buildings, churches, colleges, schools, museums, hospitals, parks, etc.—consists extensively of large buildings, with published costs, which probably are generally carried on the books at cost. In estimating this class of property for 1920 I make simply a guess. The period of 1917–1920 was one in which improvements of this nature were curtailed. It might even be found that the additions were less in amount than the losses by fire and through natural obsolescence.

REAL ESTATE IN GENERAL

The real estate of the United States is in the aggregate the largest item in the national wealth, its total being considerably more than one-half of all the physical property. No one will be more fully conscious than myself respecting the roughness of my estimates and the particulars that are open to criticism. Nevertheless they are not grossly discordant with probabilities indicated by the census figures if it be accepted that the

latter lean to the side of under-statement. A projection to 1916 of the census totals of 1904 and 1912 for property taxed would give a total of about 135 billion dollars, whereof about 47 billion dollars would be in farms, (estimating approximately 35 per cent, the same ratio as in 1910). I have estimated farms in 1916 at about 64.5 billion dollars. If the projection of the census figures be increased by this difference, *viz.*, 17.5 billion dollars the total would be 152.5 billion dollars, compared with mine of \$146,858,000,000. This suggests that if I be approximately correct with respect to the farms I am too conservative with regard to urban real estate.

In this connection it will be noticed that I have made no allowance for urban and suburban land that is unoccupied, although this is bought and sold and taxed, and in the aggregate must amount to a large figure. On the other hand, I doubtless include under this head much real estate that is elsewhere reckoned under the captions of railways and some other things.

An interesting sidelight on the position of urban real estate is thrown by the statistics of the Tenement House Department of the City of New York, which show:

<i>Year</i>	<i>Number of apartments</i>	<i>Percentage unoccupied</i>
1909	840,101	8.08
1916	956,616	5.60
1917	972,810	3.68
1919	982,926	2.18
1920	982,408	0.36
1921	982,930	0.15

The population of New York on Jan. 1, 1920, was 5,620,048. If we allow for the number of houses that are outside the province of the tenement house law there will be found a substantial confirmation of my

estimate of one house to each four of the people. Even more striking is the exhibition that the housing capacity increased but little following 1916, showing that new construction scarcely more than made good the losses by fire and obsolescence. It is shown, moreover, how even with the increasing population it was possible to get along comfortably until 1920 without much increase in capacity. In fact the normal surplus was taking care of the growing needs, but with 1920 substantially all had come into occupancy and then the situation became acute. It is before us now to provide not only for the urgent and immediate needs, but also to recreate a surplus of, say, 5 per cent. Obviously, however, there will be no natural over-building until costs fall so low as to make anticipation of needs an attractive speculation.

At the end of August, 1921, there were under construction in New York 446 tenements, to provide 11,176 apartments, at a cost of \$55,501,300, or \$4,966 per apartment. How this cost compared with pre-war costs I do not venture to indicate. Many materials had come down greatly at the middle of 1921, but building labor only a little, though its efficiency had improved. It is not improbable, moreover, that the construction of this kind in 1921 was even more of the "jerry-built" order than in 1913.

FARM IMPLEMENTS

According to the census for 1910 the average value of the implements and machinery on the farms of the United States was \$199. In my previous inventory for 1916 I estimated \$250. The census enumeration for Jan. 1, 1920, gives \$558. This large increase is explained

as being "due in part to the fact that prices for farm implements and machinery were unusually high at the beginning of 1920." I think that this is the major explanation for the highness of the 1920 figure as compared with that for 1910. I think that a reasonable estimate for 1920 on the basis of deflated value would be \$275 per farm. Estimating 6,400,000 farms at \$250 per farm in 1916 we arrive at a total of 1.6 billion dollars for that year; and estimating 6,450,000 farms at \$275 per farm we arrive at a total of \$1,773,750,000 for 1920.

LIVE STOCK

The number of head of live stock and the aggregate value thereof, as estimated by the Bureau of Crop Estimates, U. S. Department of Agriculture, is given in the following table:

<i>Farm animals</i>	1916		1920	
	<i>Number</i>	<i>Value</i>	<i>Number</i>	<i>Value</i>
Horses.....	21,210,000	\$2,182,307,000	20,183,000	\$1,664,166,000
Mules.....	4,723,000	558,006,000	4,999,000	578,473,000
Milk cows.....	22,894,000	1,365,251,000	23,321,000	1,491,900,000
Other cattle.....	41,689,000	1,497,621,000	42,870,000	1,346,665,000
Sheep.....	47,616,000	339,529,000	45,067,000	288,732,000
Swine.....	67,503,000	792,898,000	66,649,000	865,633,000
Totals.....		\$6,735,612,000		\$6,235,569,000

The estimates of the Department of Agriculture are intended to indicate only the number of animals on the farms of the United States. The number not on farms, *i.e.*, in cities and villages, is not estimated yearly, but their number in 1910 as reported by the census was as follows: horses, 3,183,000; mules, 270,000; cattle, 1,879,000; sheep, 391,000; swine, 1,288,000. For the purposes of the present estimate I may not be far out

of the way if I reckon the number and value of animals in cities and villages, at the ends of 1916 and 1920, as follows:

<i>Farm animals</i>	<i>Number</i>	<i>Value</i>	
		1916	1920
Horses.....	3,200,000	\$329,600,000	\$262,400,000
Mules.....	270,000	31,860,000	31,320,000
Milk cows.....	1,900,000	114,000,000	121,600,000
Sheep.....	400,000	2,800,000	2,400,000
Swine.....	1,300,000	15,600,000	16,900,000
Totals.....		\$493,860,000	\$434,620,000

The Department of Agriculture gives no estimate for other animals, including poultry. An addition of \$400,000,000 to the figures for each year on this account is probably none too large.

The above data, for the ends of the years 1916 and 1920, are summarized in the following table:

	1916	1920
On farms.....	\$6,785,612,000	\$6,235,569,000
In towns.....	493,860,000	434,620,000
Other.....	400,000,000	400,000,000
Totals.....	\$7,679,472,000	\$7,070,189,000

MINES AND METALLURGICAL WORKS

No separate valuation for the mines of the country has appeared in any inventory of the national wealth previous to that which I compiled and published for 1916. In earlier census estimates mines were supposed to be included under the head of real estate. However, an examination of the laws and practices of the several states with respect to mine taxation will make it evident that no good idea of the value of the mines of the country is obtainable from the assessment rolls.

In my previous estimate for 1916, I computed the value of the mines at eight billion dollars which was approximately 10 times their net income as reported to the Bureau of Internal Revenue. In making that estimate I fell grossly into error, for several reasons that it is unnecessary to explain, but chiefly because the net income of the mines of the country in that year was exceptionally large. The whole subject of valuing the mines of the country *en bloc* is extraordinarily difficult. At the best, no one can hope to arrive at anything more than a rough idea about it. However, elements of reason may be introduced and may be made to serve as chief bases.

The fundamental principle of mine valuation is the present worth of an annual dividend accruing during the period of years corresponding with the life of the mine. It is a convention that the estimated period shall not be more than 30 years, *i.e.*, although an ore-body may be so developed as to afford a certain production for 50 years, the annual dividend is computed as continuing only for 30 years. In fact, the present value of a dividend that is not to be realized until after 30 years is so small as to be negligible. The present value of an annual dividend of \$1 for 20 years is \$12.46; for 30 years, \$15.37; for 31 years only \$15.59.

The value of metallurgical works should be estimated on the same principle. If directly associated with a mine they will become useless with exhaustion of the mine. If they are independent, a conservative estimation of their value will include writing off in 20 years to provide for their obsolescence. A useful life of 30 years may be regarded as an outside limit.

We may estimate, therefore, the value of the annual

dividends of all the mines and associated metallurgical works of the United States on the basis of 30 years. Each and every one of the mines producing at any given time will not continue to do so for 30 years. Relatively few of them will do so. However, the places of those that fail and drop out will be taken by new mines developed in properties for which no present value is inventoried. Experience has amply proved that this is a safe assumption, for the production of coal, iron, and the other metals and minerals by the mines of the United States in the aggregate has steadily increased, year by year.

It remains then to determine the amount of the annual net earnings of all the mines. This is a difficult and more or less conjectural subject, for many of the most important mines are owned by industrial corporations that do not report mine dividends separately. For example, this is the case with the very large and very important iron mines owned by the United States Steel Corporation. We must resort, therefore, to indirect methods.

The net income of the mines of the United States in 1916 as reported by the Bureau of Internal Revenue was about \$800,000,000. In that year the dividends paid by 127 copper, lead and zinc and precious metal mines listed by the *Engineering and Mining Journal* amounted to \$170,388,378. Consequently the total net income of the mines of the country was 4.7 times the amount of these reported dividends. Allowing for some underestimation in the reported net income, especially for the omission of that of metallurgical works, we may assume roughly that the total net earnings of the industry amounted to about five times

what was reported by the group of public companies listed by the *Engineering and Mining Journal*.

The dividends that have been thus reported and the estimates based upon them by the above method are given in the following table:

DIVIDENDS PAID BY MINING COMPANIES

Year	—Dividends reported—		Estimated net earnings
1911	\$ 56,971,791	.....	\$284,858,955
1912	67,832,442	.....	339,162,210
1913	73,440,701	.....	367,203,505
1914	55,563,960	.....	277,819,800
1915	78,369,535	.....	391,847,675
1916	170,388,378	\$237,508,893	851,941,890
1917	.....	232,158,588	
1918	.....	168,925,566	
1919	.....	97,769,971	

In 1917 the *Engineering and Mining Journal* revised its methods of reporting mining dividends, and by the inclusion of more companies accounted for about \$67,000,000 additional in 1916. This explains the two sets of figures in the above table. It does not invalidate the use that I have made of the earlier and lower figure for that year.

The net income of 5,393 corporations engaged in the extraction of minerals in 1916, as reported by the Bureau of Internal Revenue, was \$798,883,349. Obviously this does not include the net income of individuals engaged in the extraction of minerals, nor does it include the net income of the metallurgical industry. Commercially and technically we group the mining and metallurgical industry up to the production of copper in bars, cakes and ingots, lead in pigs, zinc in

slabs, and iron in pigs.¹ Beyond that line the further treatment of the metals is viewed as manufacturing. In making their returns for income tax purposes the mining companies were allowed deductions for depletion. For present purposes that allowance is not in order, inasmuch as depletion is computed in my calculations in a different way. Considering the understatements on these accounts, I do not think that the rough estimate of \$850,000,000 for the net earnings of the mining and metallurgical industry of the United States in 1916 is too high. On the contrary it is probably too low. This year, like those which have followed, up to the present time, was one of abnormal conditions. To get anything like normality we must revert to the period before the war.

The years 1911-1913 may be regarded as reflecting earning capacity under normal pre-war conditions. In 1914, following the outbreak of the war, many branches of the mining industry experienced a great shock and there had to be an arbitrary and drastic curtailment of production. In 1915, the mines began to be reworked actively and in the latter part of that year and during the whole of 1916 they realized great profits. The average of the reported dividends in 1911-1913 was about \$66,000,000, indicating total dividends of about \$330,000,000 and the latter sum may be regarded reasonably as the average annual

¹ This is the professional, engineering view. The U. S. Geological Survey conforms to it in its statistical work. The statistics of the Bureau of the Census have been compiled upon a different and more academic basis, which prevents them from being combined with other statistical reports. This comment and criticism is much broader in its scope than the mining statistics alone. On this account the census figures fall far short of the usefulness they might have. Indeed, I may say that the census industrial statistics ought to be used only with a great deal of caution.

earning capacity of the mines and metallurgical works of the United States under normal conditions.

An idea of the earning capacity of the mining and metallurgical industry of the United States may be obtained in another way, *viz.*, by the examination of the "Statistics of Income" for 1918, and comparison of those figures, given for the first time with considerable detail, with the statistics of production reported by the U. S. Geological Survey. It is obviously necessary to consider the mining and metallurgical industry as a unit and base comparisons upon the production of the refined products; in the case of the metals, in pigs, slabs, ingots and bars. Individually there are some companies that mine, others that smelt, and others that refine. There are some perfectly integrated concerns that do all of those things. In such a study as this the industry as a whole must be considered as being in such an integrated position. In all of the following computations net income is the sum reported as such without deduction of Federal taxes. It is probable that the figures include the net income of some concerns operating in foreign countries—especially copper mining companies—wherefore they are not accurately comparable with the statistics of domestic production. However, there is no way of making discrimination on this account and such error as is introduced thereby must be overlooked. Probably it is not large.

The production of bituminous and anthracite coal in 1918 was 678,211,904 tons of 2,000 lb., valued at \$1,828,290,287. Coal mining companies in that year reported net incomes of \$180,100,595 and deficits of \$8,825,418, the net income of the coal mining industry

as a whole being therefore \$171,275,177. These figures indicate that the net income per ton of coal produced was 25 c. and that net income in the aggregate amounted to 9.36 per cent of the total gross value of the production.

The iron mines of the United States in 1918 produced 72,021,202 long tons of ore and 38,230,440 long tons of pig iron, the value of the pig iron product being \$1,180,759,565. The iron mines reported net incomes of \$5,390,973 and deficits of \$1,025,861. The iron smelters reported net income of \$89,877,109, and deficits of \$865,857. The net income of the iron mining and smelting industry as a whole was therefore \$93,376,364, which indicates net income of \$1.30 per long ton of iron ore and \$2.44 per long ton of pig iron. The iron mines of the country are largely owned by metallurgical companies. It appears from the figures reported by the Commissioner of Internal Revenue that net income was figured rather on the metallurgical side of the business than on the mining. On the basis of pig iron the net income in 1918 was 7.9 per cent of the value of the product.

The copper, lead and zinc mines of the United States reported net incomes of \$89,998,253 and deficits of \$8,764,977, a balance of \$81,233,276. Smelters and refiners reported net incomes of \$14,943,282 and deficits of \$2,609,021, a balance of \$12,334,261. The net income of the industry as a whole was therefore \$93,567,537. The value of the copper, lead and zinc produced, plus the gold and silver as by-products (\$54,858,758) was \$695,378,108. Consequently the net income of the industry as a whole was 13.5 per cent of the value of its products.

The gold and silver mines of the United States in 1918 reported net incomes of \$11,020,438 and deficits of \$8,292,563, the net for the industry as a whole being \$2,727,875. The gross value of their product was \$79,612,030, of which their net income was 3.4 per cent.

The production of petroleum in the United States in 1918 was 355,927,716 bbl. valued at \$703,943,961. The net income of petroleum producers was \$170,310,673. The deficits of concerns operating at a loss aggregated \$13,611,962. The net income of the industry as a whole was therefore \$156,698,711. This figures to 44 c. per bbl. of petroleum and 22 per cent of the total value of the product reported.

The production of natural gas and gasoline in the United States in 1918 was valued at \$203,917,095. The net income of gas producers was \$6,166,169 and the deficits of unprofitable concerns amounted to \$481,642, giving a net income of \$5,684,427 for the industry as a whole, or 2.78 per cent of the value of the product.

From all other kinds of mines there was reported net incomes of \$93,119,034 and deficits of \$27,076,573, a credit balance of \$66,042,461. The total value of their products was \$500,013,212, wherefore their net income was about 13.2 per cent of the gross.

The gold mines of the United States were in a peculiarly adverse position in 1918, owing to reasons that are well understood, wherefore their low percentage of net income is easily explainable. Assuming that their normal net income previous to the war was about 10 per cent, and applying that together with the ratios of 1918 to the gross value of the annual average production of the three years 1911-1913, the following table is derived:

Coal.....	\$694,195,787 × 0.10	= \$ 69,419,579
Iron.....	402,080,119 × 0.08	= 32,166,410
Petroleum.....	178,459,796 × 0.22	= 39,261,155
Copper, lead and zinc.....	182,603,221 × 0.135	= 24,651,434
Gold and silver*.....	101,044,644 × 0.10	= 10,104,464
Natural gas.....	83,726,597 × 0.028	= 2,344,345
Other mines.....	181,682,550 × 0.132	= 23,982,096
		<hr/>
Total net income.....		\$201,929,483

*Gold and silver mines proper. The product of the copper, lead and zinc mines includes the gold and silver derived from their ores.

A corrective factor must now be introduced. In making the income tax returns for 1918 the system of allowances for depletion had become fairly well developed and pretty full advantage of it was taken. This put the figuring of mining income upon a different basis from what prevailed before the war, when generally the net proceeds were paid out as dividends without distinction as to meaning and it was left to the stockholder to figure amortization in his own way. In 1918 before arriving at \$589,372,552 of net income there had been deducted \$442,000,000 for depletion. Consequently, the net proceeds before making that deduction must have been about \$1,031,000,000 whereof net income was 57.16 per cent. Average net proceeds in 1911-1913 according to my previous method of computation were therefore something like \$201,929,483 ÷ 0.5716 = \$353,000,000 probably. This is a result that is similar to that of \$330,000,000 arrived at by multiplying the reported dividends of \$66,000,000 by five. The reported dividends were substantially those of copper, lead, zinc, gold and silver mining companies. The net earnings of that branch of the mining industry according to my second method of figuring should have been about \$61,000,000.

All of this is admittedly very rough, but there is logic in it and nothing that appears very much contrary to general knowledge of conditions and results. For example, when it be deduced that this figuring corresponds with an average gross return of about 3.85 c. per lb. of copper, the average price for copper during this period having been 14.95 c. per pound, there will be no strong contradiction offered. Nor as to the deduction of 22 c. per ton average profit on coal.

These figures afford another interesting deduction. The total value of mineral products in 1918 was \$5,192,000,000, whereof the net proceeds of \$1,031,000,000 figure just 20 per cent. Only a little more than one-half of this was true net income according to the producers making income tax returns, the remainder being credited to depletion, *i.e.*, the return of principal. In 1911-1913 the average annual mineral and metal production was \$1,923,000,000 whereof the net proceeds were 17 or 18 per cent, according to whether \$330,000,000 or \$350,000,000 be assumed. Throughout this study the quarrying industry has been eliminated, consideration being confined to the mining and metallurgical.

It may be pointed out that net earnings would be calculated larger if deficits had not been deducted from net income as reported by the Bureau of Internal Revenue, and of course that would be true. The losses in some mining enterprises may have been of money made in some other industry. In my present examination of the mining and metallurgical industry as a whole, however, I consider it not only proper but also necessary to take into account both profits and losses, having in mind that many enterprises incurring losses may be

in the process of development to replace profitable enterprises that sooner or later will become exhausted. I am not, however, very firmly committed to this theory.

At all events, it may be assumed reasonably, I think, that the average annual net earnings of the mines and metallurgical works of the United States in 1911-1913 was about \$330,000,000, without allowance for depletion or amortization, which will be reckoned in the method of capitalization. With the assumption of this figure we may proceed further.

It is well recognized among engineers that mining investments should yield at least 7 per cent net return. It may be argued that mining investments should be expected to make a much larger net return than 7 per cent, and that is perfectly true with respect to individual enterprises. In the present computation it is assumed, however, that production for 30 years by the mining industry as a whole is assured, and that there are no extraordinary hazards. Under these conditions, which perhaps may be compared with those of some of the porphyry copper mines, the assumption of 7 per cent net return is reasonable. In order to replace the capital at the end of the selected period, in this case 30 years, a certain proportion of the net earnings must be set aside and reinvested in the sinking fund. The replacement of \$1 in 30 years requires the setting aside of 1.505 c. per annum, if reinvested so as to yield 5 per cent. Consequently in order to get a net yield of 7 per cent there must be a gross yield of 8.505 per cent. Upon that basis, the capitalization of \$300,000,000 per annum is \$3,880,070,546, and that may be assumed as being

approximately the value of the producing mines and metallurgical works of the United States at the end of 1916.

In order to arrive at an estimate of the value at the end of 1920 I must proceed in a more empirical way. If the theory that the mines were going to continue their production indefinitely were correct, of course their aggregate value should remain unchanged. However, we know that the mineral wealth of a country is not everlasting. The principle of sustained production that I have previously stated implies the continuance of prospecting and development work, the bringing in of new mines to replace those that have become exhausted. Normally this goes on automatically, but that was not so during the war and the years immediately following. The exigencies of the situation demanded the forcing of production from the developed mines, and scarcely any new mines were brought in. In the case of coal, iron, copper, lead and zinc the production of the mines of the United States during the four years 1917–1920 was in each case about five times the average annual production in tons in the three years 1911–1913. It is a reasonable assumption that if at the end of 1916 the mines of the country could be relied upon for 30 years of production at the end of 1920 only 25 years should be figured. Upon the latter basis a gross yield of 10.095 per cent would be necessary in order to give 7 per cent net and the estimated value of the mines would be \$3,268,945,022. The difference between that figure and the one previously given represents the loss of value by depletion.¹

¹ Since making these calculations, which I published in *Mining and Metallurgy*, for October, 1921, the Census figures for Jan. 1, 1921, have

The large earnings of 1915-1920 were to a great extent appropriated for increase of property and plant that now has to be thrown away. Previous to the war the country had capacity for the production of 400,000 tons of zinc per annum. During the war this was increased to 800,000 tons. At the present time there is no reasonable expectation that in the future that can be foreseen there will be any use for more than 400,000 tons of this capacity. This means that this industry must discard and write off for plant a sum which even under pre-war conditions would stand at something like \$25,000,000. Similarly, in copper we increased our capacity from 1.25 billion pounds per annum to two billion, and now have a surplus to write off. In pig iron we did not have extensive overbuilding. Against a pre-war nominal capacity for 43,000,000 tons per annum we have now a total of about 48,000,000, giving a surplus of about 5,000,000 tons, estimated at \$40,000,000 under pre-war conditions. This last figure is for blast furnace plants alone and does not include anything for mines and steel works.

In point of fact the amounts of capital invested in plant for war purposes that must now be written off is much greater than these figures would indicate, for the cost of these additions to plant was very much greater, even as much as two times as great, as it would have been under the pre-war conditions that these figures reflect. Besides the appropriation of become available. They show a total of \$4,366,000,000 of "Capital" in the mining industry exclusive of petroleum. "Capital" and "Value" are, of course, two different things. I prefer the guidance of my own estimates rather than those of the Census, but the latter may be considered in a way to support my estimates.

surplus earnings in those ways, a good deal was put into the accumulation of stocks of the products, which subsequently was lost through shrinkage of value; and a portion was reserved to insure the maintenance of dividends as a whole. Up to the present time it has been possible to a large extent to apply that theory. For example, the iron and steel companies have been able to continue payment of their dividends although current earnings have been quite insufficient for that purpose. On the other hand, the copper producing companies, with but few exceptions, have been obliged to discontinue the payment of dividends, in spite of their large book surpluses.

It is a question that it remains for the future to solve whether the mining companies of the United States did not lose through the consequences of the war a good deal more than they profited during the war. The answer to this question will have to be deferred until some years have run on and we can see how long will be the period of no net earnings and suspension of dividends. I lean to the opinion that the actual depreciation in the value of the mines of the United States by depletion from 1916 to 1920 is more than the \$600,000,000 that I have herein estimated.

My inventory does not include anything for the known mineral wealth of the country that is not the present source of earnings except insofar as such value is compounded in the thought that these reserves are going to be drawn upon during the estimated period of 30 years. This thought, however, does not include any allowance for expanding production, corresponding with general growth in industry. There is therefore an element of wealth, which has an actual and very

considerable market value, that is not inventoried. There are, for example, coal lands, which are assessed for purposes of taxation at only a few dollars per acre, but which have a market value of many dollars per acre. In the previous census estimates of the wealth of the country this value has been presumably included under the head of real estate, but it is clear that any such record has been inadequate. I feel that my present estimates for the value of the mines of the United States are too low rather than too high. However, as between 1916 and 1920 they afford reasonable comparisons.

A side-light upon the shrinkage in mine value is to be found in the quotations for the shares of the copper producing companies, about 60 in number, that are listed on the exchanges. At the end of 1916 these reflected an aggregate value of 1.57 billion dollars. At the end of 1920 this was only \$737,000,000. The market had therefore indicated a shrinkage of over \$800,000,000 in copper mining companies alone. This is in no way to be regarded as a true measure. The market was not only reflecting the depletion of the mines and the deferral of dividends, but also somewhat of the surplus producing capacity that was destined to be written off. And withal it was possibly over-discounting all of those factors, amid the pessimism of the time and the exigencies of forced liquidation. Nevertheless, it is obvious that, even after making allowance for foreign companies included in the list of 60, the copper mines as a whole were enormously over-valued by the market at the end of 1916, no matter if the prospects for the industry were as good as they were then thought to be. Anyway, the

shrinkage in stock market value supports in a way my representation of the diminished value of the mines of the country as a consequence of the war.

RAILWAYS

The mileage of the steam railways operated in the United States is given in the following table, the figures having been supplied by the Interstate Commerce Commission:

<i>Year</i>	<i>Miles operated</i>
1916	264,232
1917	266,015
1918	264,233
1919	263,707
1920	235,580

The figure for 1920 is incomplete, only the operative mileage of railways of Class I being represented, information for all roads not being available at the time when these figures were furnished. It is a fair inference that the total for 1920 will not be far from 263,000 miles. This table is instructive in its showing that from 1916 to 1920 there was no increase in the railway mileage of the United States.

Estimates of the value of the railways of the United States, together with their equipment and accessories, are variable. The whole subject is indeed controversial. The Interstate Commerce Commission has been engaged during a long period of years in making valuations in detail, railway by railway. Figures for individual roads are only now being published. No total for all of the roads of the United States has yet been announced.

The above paragraph almost exposes the futility of any such attempt at the valuation of so big a property

as the railways of the country in detail and in aggregate. In this case we shall eventually have valuations of properties as they were in 1914.

In the meanwhile the Interstate Commerce Commission has made only one statement on this subject, which occurred "In the matter of the applications of carriers in official Southern, and Western classification territories for authority to increase rates," submitted July 6, 1920, and decided July 29, 1920. In this case the Interstate Commerce Commission said:

"We find that the value of the steam-railway property of the carriers subject to the act held for and used in the service of transportation is, for the purposes of this particular case, to be taken as approximating the following:

Eastern group, as defined by the carriers.....	\$ 8,800,000,000
Southern group, as defined by the carriers.....	2,000,000,000
Western group, as defined by the carriers, including both the Western and Mountain-Pacific groups herein designated.....	8,100,000,000
Total.....	\$18,900,000,000

"The aggregate amount carried as book cost of road and equipment by all classes of carriers reporting to us, as of Dec. 31, 1919, is set out below according to the territorial groups defined in the applications of the carriers:

Eastern group.....	\$ 9,038,194,615
Southern group.....	2,183,923,124
Western group.....	8,818,454,872
Total, all groups.....	\$20,040,572,611

On this subject I invited the advice of Mr. L. F. Loree, president of the Delaware & Hudson Co., and I can not do so well as to quote in full his communication, dated Oct. 11, 1921, which I do with his permission:

1. "In this statement I have not given consideration to total market value of railroad securities, nor to the value of the railroad property determined by capitaliz-

ing the net income, present and prospective, but have given the following conclusions, considering only the probable cost of reproduction new.

2. "As of Dec. 31, 1919, the aggregate amount carried as book cost of road and equipment by all classes of carriers reporting to the Interstate Commerce Commission was \$20,040,572,611.

3. "In July, 1920, the Interstate Commerce Commission was called on to place a "tentative value" on all the roads, as per the Transportation Act of 1920, to be used as a rate base. They then estimated this value to be 18.9 billion dollars. They did not state how they reached their conclusion, but if from the recorded investment in road and equipment above quoted the amount set aside by the railroads for depreciation reserve of equipment be deducted this amount would be approximated.

4. "Testimony at rate hearings before the Interstate Commerce Commission, Washington, D. C. on May 26 and 27, 1920, disclosed that for 50 roads, aggregating 51,853 miles of route, the Interstate Commerce Commission reported that the cost of reproduction new (1914 prices) would be \$3,203,782,543. For the same roads the recorded investment, as shown on the books of the carriers, in road and equipment was \$3,158,275,156. The estimates of the Interstate Commerce Commission included the values of lands based upon an estimate of the acreage or square foot value of the adjoining properties. In the case of the Kansas City Southern *vs.* the Interstate Commerce Commission, the Supreme Court decided that the Commission must substitute for these figures these estimates of the cost of the land if it were to be acquired for the purpose of

railroad construction. The cost of the lands for the 50 roads mentioned was \$347,741,031. It is estimated that this would have to be at least doubled, so that if this correction is made their estimate of the cost of reproduction new would be, for land, \$695,482,062, based upon the prices of June 30, 1914. At the request of the Interstate Commerce Commission, Congress on June 7, 1922, passed an act relieving the Commission of the duty of finding the cost of acquiring land. It is not likely, however, that this will affect the determination of final values.

5. "The carriers have complained bitterly of the attitude of the Interstate Commerce Commission in fixing what they claim to be indefensibly low unit prices in construction, in minimizing the period which would have to be covered by construction, in the underestimate of the value of lands acquired, in not including interest on land acquired for the period of construction, and in writing down property through a misapplication of the theory of depreciation.

6. "Comparisons which we have been able to make indicate that based on the prices of June 30, 1914, as against the cost of reproduction new, the theory of depreciation, as applied by the Interstate Commerce Commission, effects a reduction of from 16 to 23 per cent, and that the effect of this application of their theory of depreciation would be to write down the cost of reproduction new in its total by about 20 per cent. This deduction for depreciation is certainly excessive and I feel satisfied will, when passed by the Supreme Court, be held to be unwarranted. No consideration has been given to certain well recognized influences of appreciation in value such as adaptation and solidification of road bed, etc.

7. "On 14 roads, covering 17,600 miles, we have been able to compare the Interstate Commerce Commission's estimated cost of reproduction new with the railroads' estimated cost of reproduction new, based on 1914 prices. We find that the carriers' estimate is 19.3 per cent higher on an average than that of the Interstate Commerce Commission. I am of opinion that the carriers' figures are conservative and that the roads could not have been built in 1914 for the carriers' estimate, and under no stretch of the imagination could they have been built for the Interstate Commerce Commission's estimated cost.

8. "I, therefore, feel that the Interstate Commerce Commission's estimated cost of reproduction new (1914 prices) for all the railroads in the United States will, if completed, be approximately 10 per cent over the present recorded investment in road and equipment (\$20,040,572,611, Dec. 31, 1919). To obtain the carriers' estimated cost of reproduction new (1914 prices) there should be added 20 per cent, or a total of 32 per cent, giving 26.5 billion dollars, and these figures are too low rather than too high.

9. "As to the effect on the properties of the administration by the Federal Government it is very difficult to get any information from Governmental sources, the Director General especially declining even to give the names of the carriers who have filed claims.

"Of the 169 Class I roads, 82, representing 168,856 miles, or about 73 per cent of the road mileage of such roads, have filed claims against the Director General amounting to \$696,958,428. This would seem to warrant the conclusion that the claims of all the railroads of the country against the Government, growing

out of the taking over of the roads by the Government during the war, will be in the neighborhood of 1.9 billion dollars. These claims, however, contain a considerable number of items, of which depreciation or under-maintenance is only one.

“The roads from sale of capital securities, surplus earnings and other resources, added to their capital account 1916–20 property costing two billion dollars.

“There is further the matter of addition and betterments undertaken by the Government during its control, about \$300,000,000 having been put into equipment and now covered by equipment trust obligations of the carriers interested, and about \$500,000,000 in other additions and betterments, the funding of which is now under consideration by the administration.

10. “In the matter of depreciation it should be borne in mind that as to about one-half the railroad property, lands, grading, etc., the question does not arise. As to much of the other property, the annual replacements tend to fall into a rhythm and eliminate depreciation; that is, if the average life of a cross-tie is 10 years and one-tenth of the ties are replaced annually and the cost charged to expenses, there is no room for depreciation. If the idea of depreciation is to be given status, then an involved bookkeeping would have to be devised by which the value of one-tenth of the ties would be charged to depreciation annually and then depreciation written off annually by the amount of money advanced to replace them. There was, however, during the period of Federal control a distinct falling off in the maintenance of the properties and in the replacement of parts wearing out due to four causes:

A. The absorption for war purposes of large amounts

of material, such as steel that would otherwise have gone into rails and equipment, wood such as would have gone into cross ties and trestles, etc.

B. The inability to secure labor to conduct the work, due to its absorption in war activities, it being estimated that nearly 15,000,000 men were either in actual service or engaged in the support of those who were, or in the production of war materials.

C. The plight in which the Director General found himself, in first having made a large increase in the wages of the employees, without providing for additional revenue through an increase in rates, then relying upon the belief that there would be a sufficient increase in business to safeguard the situation, and his subsequent resort to a reduction in working forces and application of material, to save himself through a decrease in expenses.

D. There was a great deterioration in the morale of the forces, which the roads are finding very difficult to correct, especially as the railroad organizations are entrenching themselves behind the authority of the United States Railroad Labor Board. The effect of this is lasting and its cost is difficult to estimate, but it will run into substantial percentages as affecting expenses.

“I have seen no figures, except very rough estimates, but the indications are that the deterioration during the 26 months of federal control and the six months of the guaranty period will not exceed one billion dollars nor be less than \$750,000,000.

“Attention is called to the fact that many items, such as land, sub-grade, interest during construction and other overheads, do not depreciate and, therefore, other items have shown a very large depreciation to reduce the total to 4 per cent. Therefore, cost of

reproduction (1914 prices) less depreciation, based on carriers' estimate, will be approximately 25.5 billion dollars which I think is conservative."

The opinions and conclusions of Mr. Loree are not only those of an expert, but also they carry conviction by virtue of his sound reasoning. Summarizing his data we get 24.5 billion dollars as the value of the railways of the United States at the end of 1916, and 25.5 billion dollars at the end of 1920.

ELECTRICAL RAILWAYS

At the end of 1916 there were in the United States 44,080 miles of electrical railways, and the stocks and bonds of the companies operating them were valued at \$5,361,734,365. At the end of 1918 the mileage was 44,949 and the value of the stocks and bonds was \$4,667,998,492. The situation of the street railways since then has steadily been becoming worse.

In the report of Senator Calder's Committee on "Reconstruction and Production" (*Senate Report No. 829*) there is the following statement:

"According to the American Electric Railway Association, out of 44,000 miles of electric railways in the United States, on Dec. 31, 1920, 5,530 miles were in the hands of receivers, 1,600 miles had been abandoned, and 900 miles had been torn up and junked. On Feb. 4, 1921, 5,997 miles of electric railways were reported as being in the hands of receivers, representing \$823,429,294 of securities, or 17 per cent of the total valuation of the electric railways in the United States."

A total of four billion dollars for the value of the electric railways in the United States at the end of 1920 will be no under-estimate. This is to be compared with

\$5,361,734,365 at the end of 1916. The deterioration of the public services has been one of the grave consequences of the economic conditions of the last five years.

EXPRESS COMPANIES

According to the Interstate Commerce Commission the cost price of the real property and equipment of the express companies of the United States at the end of 1916 stood at \$38,597,253, while at the end of 1920 it stood at \$34,691,199.

MEAT PACKING PLANTS

According to Thomas E. Wilson, president of the American Institute of Meat Packers, the packing companies of the United States at the end of 1920 had a capital investment of approximately \$590,000,000, compared with \$364,000,000 at the end of 1916. I think there is probably some inflation in the total for 1920.

The meat-packing industry may be considered to be a branch of manufacturing, but its methods are so peculiar and its ramifications are so extensive that it seems to me to deserve a separate enumeration.

The figures given above for this industry represent the total capital employed in the business rather than the value of plant alone, and for the latter I have been unable to obtain any data. If I assume that about 70 per cent of the capital in 1916, or roughly \$250,000,000, was in plant, and that at the end of 1920 this had increased to \$350,000,000 I shall not, perhaps, be far out of the way.

TELEPHONES AND TELEGRAPHS

At the end of 1916 the telephone and telegraph plant of the United States was estimated as representing an

investment of \$1,475,000,000; at the end of 1920 at 2.1 billion dollars, but if the increase in the physical telephone and telegraph properties since 1916 be reckoned at pre-war prices, the plant investment at the end of 1920 would have been approximately 1.8 billion dollars. In other words, the book value of 2.1 billion dollars must be written down to 1.8 billion dollars.

PULLMAN CARS

The value of the Pullman cars in the United States at the end of 1916 was \$130,000,000. At the end of 1920 it was \$150,000,000. These figures are supplied by the Pullman Co. There is possibly some inflation in the figure for 1920. However, this is a relatively small item in the grand total of the national wealth.

TANK CARS

The number of tank cars in the United States, owned privately, may be estimated at 35,000, valued at \$63,000,000 in 1916; and at 100,000, valued at \$180,000,000 in 1920, although the cost of the additions since 1916 has been a great deal more than this estimated addition in value. The largest part of the tank car plant of the country is used for the transportation of petroleum and the increase reflects the great growth in that industry.

The Union Tank Car Co. owns approximately 26,000 cars out of the total of 100,000 in the United States. The General American Tank Car Corporation has about 10,000, the Texas Co. about 5,000, Sinclair Consolidated Oil Co. about 5,000. The railways of the United States own in the aggregate about 10,000.

PIPE LINES

The Interstate Commerce Commission has recently made an investigation of the mileage of pipe line companies, for the transportation of petroleum, and the amount of capital invested by them, which is the first study of this subject that has ever been made. At the end of 1920 the mileage of the trunk lines was 26,286, and of the gathering lines 19,691, a total of 45,977. At the end of 1919, the corresponding figures were 27,797; 19,986; and 43,783. The total investment of these companies at the end of 1920 was \$607,593,657, whereof \$340,323,150 was in pipe lines. At the end of 1919 the total investment was \$526,866,135, whereof \$288,499,726 was in pipe lines. No similar figures for the end of 1916 are available. A reasonable conjecture would probably be a total investment of \$400,000,000 at that time.

TANKAGE

At the end of August, 1921, the quantity of crude petroleum in storage in the United States was approximately 270,000,000 bbl., this being the largest amount since pre-war years. The storage capacity was then severely taxed, and about 300,000,000 bbl. may be considered to represent the aggregate capacity of the United States. About 60 per cent of the total capacity, or 180,000,000 bbl., is estimated to belong to the Standard Oil group. The petroleum refineries of the United States at the end of 1920 had a capacity for handling about 700,000,000 bbl. of crude petroleum per annum, compared with 427,000,000 bbl. at the end of 1917.

At \$200 per 1,000 bbl. the petroleum storage capacity in 1921 stood at about \$60,000,000. Figures for 1916 are lacking. At a guess, I assume \$50,000,000.

MANUFACTURING MACHINERY AND TOOLS

The data for this highly important subject are unsatisfactory. In "Estimated Valuation of National Wealth" under the head of "Manufacturing Machinery, Tools and Implements" it is said: "For 1900 and 1904 data for the value of manufacturing machinery, tools and implements were secured from the reports of the census of manufactures. The census of 1910, based on the operations of 1909, did not, however, show these values separately, but included them with capital, so that it was necessary to prepare the estimate for 1912 on a different basis. A study of the reports of 1899 and 1904 shows that the increase in the value of manufacturing machinery, tools, and implements for that period was in approximately the same ratio as the increase in all capital. The estimated value of capital in 1921, including machinery, etc., was obtained by applying the annual rate of increase from 1904 to 1909. It was then assumed that machinery, tools, and implements increased in value at the same rate as the total capital."

The figures arrived at in the above way and actually given in the census tabulation are the following:

1904	\$3,297,754,180
1912	\$6,091,451,274

In "Census of Manufactures" for 1914 the following figures are given:

	1904	1909	1914
Number of establishments.....	216,180	268,491	275,791
Persons engaged			
Proprietors.....	225,673	273,265	262,599
Salaried employees.....	519,556	790,267	964,217
Wage earners, average.....	5,468,383	6,615,046	7,036,337
Wage earners, maximum.....	5,676,920	7,006,853	7,242,752
Primary horsepower.....	13,487,707	18,675,376	22,547,574
	\$12,675,580,874	\$18,428,269,706	\$22,790,979,937

In my previous estimate for 1916 I computed that the mean of the pig-iron production in 1915-1916 was 1.3 times the mean of the production in 1911-1912 and starting with the census figure of \$6,091,451,274 for 1912 and assuming that the machinery and tools of the country had increased in about the same ratio as the pig iron production I arrived at a total of eight billion dollars, which of course did not allow anything for increase in unit values from 1912 to 1916. I expressed the opinion at that time that these figures, both for 1912 and 1916, were inadequate, and I may add also the figure for 1904.

In 1904 there were 5,676,920 workers employed in the factories of the country at the maximum, and in 1912 about 7,000,000. These figures indicate plant value to the amount of about \$580 per worker in 1904 and \$870 in 1912. These quotients are not at all in harmony with specific industrial data as I shall proceed to show.

The number of cotton spindles in the United States in 1916 was about 32,000,000, valued at about \$800,000,000. The number of persons engaged in the manufacture of cotton goods was not to exceed 400,000. On that basis the cost of the plant used by them was \$2,000 per person.

The machinery for a shoe manufacturing plant cost about \$2,500 per worker before the war. Now about \$5,000.

The Anaconda Copper Mining Co. in Montana in 1916 had about \$27,500,000 in metallurgical plant and 5,200 workers, an average of about \$5,300 per man. That company normally produces about 20 per cent of the copper of the United States. The data computed

for it afford a rough indication of the status of the copper smelting industry of the country.

The zinc smelting industry under normal conditions employs about 5,000 men who use plant costing about \$2,000 per man.

According to a brief submitted by John A. Topping, chairman of the board of the Republic Iron and Steel Co., in behalf of the independent steel companies, to the Committee on Finance of the U. S. Senate, Aug. 25, 1921, the census of manufactures in the United States in 1914 showed that the steel industry of the country had then a capital investment of 4.3 billion dollars. The annual capacity for production of steel ingots was about 40,000,000 tons of 2,240 lb. Thus the invested capital was about \$100 per ton of 2,000 lb. At present the capacity is about 61,600,000 short tons (55,000,000 long tons)¹ of ingots, representing an investment of about 6.2 billion dollars (at 1914 prices). With full operation of the industry about 1,500,000 persons are employed. The plant and working capital that they use stands therefore at upward of \$4,000 per worker.

The Bethlehem Steel Co. has a property investment of about 200 million dollars in its commercial steel plants, which have capacity for the production of about 3300 million long tons of steel per annum and for the employment of about 100 thousand men. These data indicate a plant cost of about \$60 per long ton (\$54 per short ton) of steel and about \$2,000 per worker, which quotients are not out of line with those figured from Mr. Topping's data which represent plant plus working capital.

¹ Other authorities put it at 52 to 53 million long tons.

In the manufacture of crucible steel for tools and other special purposes about \$240,000,000 is invested, the plants giving employment to a maximum of about 40,000 men, which indicates an investment of about \$6,000 per worker. According to John A. Mathews, president of the Crucible Steel Co. of America the investment in a crucible steel plant is \$300 to \$400 per ton of annual capacity. The production of a tool steel plant averages about 12 tons per man per annum, while in ordinary steel manufacture it is 180 to 360 tons.

The General Electric Co. has manufacturing plant of book value of \$112,621,343, which has afforded employment to 77,000 workers. The average value of the plant used by them is, therefore, \$1,462. I do not put any emphasis upon this figure, for the General Electric Co. has notoriously written down its plant investment in a very severe way, and the actual cost and value per worker of the plant used in electrical manufacturing is undoubtedly much larger than this quotient indicates. The Westinghouse Electric and Manufacturing Co. employs about 45,000 men when running full. Thus we are able to account for 122,000 workers employed by these two principal companies of the electrical manufacturing industry.

According to the National Automobile Chamber of Commerce the automobile manufacturing industry, including the production of parts and accessories, represented a capital investment of \$407,730,000 in 1914 and furnished employment to 146,000 persons, the capital per person being, therefore, \$2,793. In 1920 the capital invested was \$2,126,717,377. The number of persons engaged in manufacturing was

703,500, the investment of capital being, therefore, \$3,023 per person.

The Ford Motor Co., according to Henry Ford in a recent interview, has about 100 million dollars in buildings, and 100 million dollars in machinery. At the maximum it employs about 50 thousand workers, which indicates a machinery installation of about \$2,000 per worker. This figure is nearly enough in line with the total for the industry reported by the National Automobile Chamber of Commerce, which includes both plant and working capital.

The seven motor-cycle manufacturers of the United States have a capital investment of approximately \$18,000,000 and employ about 6,000 men, an average of about \$3,000 per man.

The above figures, representing several major manufacturing industries, especially iron and steel, cotton spinning, electrical manufacturing and automobile manufacturing, employing in the aggregate upward of 2,000,000 workers, furnish a strong indication that the plant employed in manufacturing in this country stands at something like \$2,000 per worker. In default of anything better, I assume that figure, and in making the assumption consider that all factors of inflation, inclusion of capital other than plant and duplication of plant elsewhere reckoned (under the head of real estate, mines, etc.) have been eliminated.

During the war we put huge sums of money into manufacturing plant. Thus, the automobile manufacturing industry was expanded from \$407,730,000 capitalization, employing 146,000 workers in 1914 to \$2,126,717,377 capitalization, employing 703,500 workers in 1920. At the end of 1916 we had 61

shipyards, with 215 ways, and at the end of 1918 we had 203 with 1,020 ways. A large amount of capital was put also into plant for the manufacture of ammunition and military equipment. On the other hand some industries shrunk, the most noteworthy example of this being carriage and wagon building, for which there was only about one-half the number of establishments in 1919 as there was in 1914. This is not surprising. As automobile making waxed, carriage making waned.

I have previously pointed out that the large profits that we acquired in the early years of the war were derived from the sale of our agricultural products and metals. I have used the term "profits" although in fact what were viewed as such were to a large extent not really profits at all, as I shall explain. In part these profits came from the sale of stocks of goods at rising prices. These were true profits, but they were bound to be offset by losses from the subsequent sale of stocks on a falling market. This happened in fact in 1920-1921.

In part, however, the apparent profits of the early years of the war were the price that Europe was paying us for the provision of new plant that was destined to be thrown away. In other words Europe was transferring some of its capital for us to waste here, instead of wasting it at home, and we were not becoming any richer thereby, although we thought we were.

I may illustrate this from the zinc industry, with which I am especially familiar. The utter absence of adequate smelting capacity in the allied countries led them to bid us such prices for the metal as to induce us to provide new plant for making it. In two years we doubled our smelting capacity, adding

capacity for the making of 400,000 tons of zinc per annum. How much money we actually put into that I do not know, but if it had been done on the same terms as previous to the war the requirement would have been about \$10,000,000. This now has to be thrown away as useless. The zinc industry as a whole is no better off than it was before the war; indeed it has probably been impaired, although in 1915-1916 it was thought to be making enormous profits. Substantially the same thing is true of copper and I imagine that it runs through our entire manufacturing industry. Of course it is well known that after the entry of the United States into the war we put billions into shipyards and ships, aeroplane factories, and chemical works that simply have to be written off. Some of this plant has already been scrapped. More of it will be. Practically all of it must be written off.

At the end of 1920 the American mining, metallurgical and manufacturing capacity was in general overbuilt, and in many cases greatly overbuilt. In making a statement of this nature it is necessary to have a standard of comparison. Such a standard may be assumed reasonably to be the capacity required to meet the requirements of 1913, plus a percentage commensurate with the increase in population, plus a percentage that ought always to be available, and generally is, to take care of sudden, extra demands—peak loads, so to speak. It is a normal characteristic of every industry to have a surplus of capacity, not only to be ready for such peak loads, but also to allow for periodic renovations, for no plant can be operated at 100 per cent of capacity all the time. The normal surplus of capacity is apt to consist largely of plant

that is a little below the highest standard of efficiency, but is still too good to be definitely discarded.

In the mining and metallurgical industry, the capacity for copper production is without any doubt greatly over-extended, but it is difficult to express this numerically. The refining capacity was 1768 million pounds at the end of 1913 and 2794 million pounds at the end of 1917. After 1918 there was a small annual decrease owing to dismantling. The smelting capacity was sufficient for about 20 million tons of ore at the end of 1913 and about 22.5 million at the end of 1920. In this branch of the industry there was no great increase, there having already been superfluous capacity in 1913. As for the mines they produced about 1.25 billion pounds in 1913 and two billion pounds at the maximum (in 1916). At the latter time their production was forced to a rate that probably could not be maintained long. The present mine capacity is probably somewhere between 1.5 and 1.8 billion pounds.

The capacity for zinc production is over-extended about 100 per cent; for lead production there is a smaller surplus, but this is an old state of affairs, no noteworthy additions in this industry having been made during the war. In pig iron also, there was a substantial surplus of capacity in existence before the war and only moderate additions were made during that period, but at the present time the furnaces are able to make a far greater quantity of metal than there is any demand in sight. The steel works also, are overbuilt having a present ingot capacity for making 55,000,000 long tons per annum, which is largely in excess of the blast furnace capacity for making pig iron and far beyond present or prospective requirements for steel. In

bituminous coal mining "there is nearly 100 per cent excess capacity in the development of the mines and this development keeps growing."¹ The anthracite mines, on the other hand appear to be pressed closely to their capacity. In brimstone, the country has capacity for the production of 2,000,000 tons per annum with prospective demand for no more than 1,000,000 tons.

The metal manufacturing industries are also greatly extended. The copper wire, sheet and brass mills have present capacity for manufacture of about two billion pounds of copper per annum, but the use of copper in the United States immediately before the war was at the rate of only about 800 million pounds per annum. The steel plate rolling mills have present annual capacity for 6.7 million long tons, and the sheet mills (for black and galvanized sheets) for about four million long tons, both of which capacities are greatly in excess of the requirements. The capacity for plates had necessarily to correspond with the rate of shipbuilding, and with the decline in the latter became redundant.

In sulphuric acid, the basis of the chemical industry, the overbuilding is enormous. In 1913 the United States made 2,235,000 tons (in terms of pure acid) and in 1918 no less than 4,700,000 tons. At the end of 1918 the sulphuric acid manufacturing capacity was 6,000,000 tons, basis 100 per cent H_2SO_4 . The capacity for alkali production is also largely overextended. The maximum pre-war capacity for sodium hydroxide was about 300,000 tons. In 1916 it was about 400,000 tons, and at present about 550,000 to 600,000 tons.

The over-expansion of our shipyards is so notorious

¹ Edwin Ludlow, *Mining and Metallurgy*, October, 1921.

that no further comment on this subject is needful. The automobile factories are able to produce 2,750,000 cars per annum. There may possibly be use for half that number, perhaps for no more than 1,000,000 cars per annum. Yet the automobile manufacturers are still increasing their capacity.

The textile industry appears to have escaped overbuilding and is probably in the best position of the major industries, especially with respect to woolweaving. Even now the American Woolen Co. is operating at 95 per cent of its capacity and is preparing to build a new mill. Cotton spinning also is in a good position. On Aug. 1, 1921, there were 36,617,584 cotton spindles in the United States, of which 36,047,367 were operated some time during the year ended July 31, 1921, and 33,898,415 were operated some time during September, 1921. In 1916 the total number of cotton spindles was about 32,000,000, wherefore, the plant increase was relatively small, notwithstanding the fact that a large part of the demand upon this industry is by the automobile tire manufacturers.

The capacity of the woolen mills of the United States is as follows:

		<i>In operation</i>
<i>Looms</i>	<i>Total number</i>	<i>Oct. 1, 1921</i>
+50-in. reed space looms.....	62,448	47,655
-50-in. reed space looms.....	17,929	13,306
Carpet and rug looms.....	8,665	6,010
 <i>Spindles</i> 		
Woolen.....	2,306,857	1,791,207
Worsted.....	2,382,837	2,176,901

The boot and shoe manufacturing industry, on the other hand, is immensely over-equipped. According

to the recent survey of the committee on the elimination of waste in industry of the Federated American Engineering Societies, the boot and shoe factories of the United States are capable of producing 1,750,000 pairs per day, and are called upon to produce but little more than one-half that number. According to the same authority the clothing factories of the country are built 45 per cent in excess of what is necessary.

According to the *Electrical World*, September, 1921, the electrical manufacturing industry of the United States at the end of 1920 had nearly doubled its capacity of 1916. This does not, however, show overbuilding in this industry, which in its phenomenal history of 40 years has been doubling itself every five years and for the soundest of economic reasons, electrification promoting economy in production and increasing the comfort in living.

The petroleum refining capacity of the United States has also been greatly increased since 1916, but perhaps this has not outrun actual requirements to any large extent. The present capacity for petroleum refining is about 700 million barrels. All of this has never yet been in use at one time. About 30 per cent of the capacity is in casing head gasoline and skimming plants which specialize in extracting gasoline from crude petroleum.

It will be seen therefore that among American industries textile-weaving, electrical manufacturing and petroleum refining are in good positions in so far as investment in plant is concerned. As compared with 1916 textile-weaving had been far less extended than the other two, and during 1921 a much higher percentage of its plant was in use. In the mining and metal-

lurgical industries, both ferrous and non-ferrous, there is an enormous over-equipment. Also in the chemical industry, in automobile factories, in shipyards, and in factories for the making of boots and shoes and clothing. In such over-extensions are to be found the sinks into which billions of our money has gone.

I think that it is a reasonable estimate that there has been an economic increase in the manufacturing machinery and tools of the country that is in proportion to the increase in population and number of workers, no more. In 1914 the total number of factory workers (wage earners) was about 7,250,000 at the maximum of employment, their number being 7.3 per cent of the total population of 99,104,000. At the same ratio the population of 106,000,000 in 1920 indicates a total of about 7,750,000 factory workers. As I have previously pointed out only that part of the manufacturing plant of the country for which we have use has economic value. It might be considered that a surplus would find use with the increase in population, and consequently the number of workers, and to a certain extent that may be true. On the other hand, any large surplus supposed to be in reserve for that purpose is likely to become obsolete before use may be found for it. Such considerations introduce refinements that can not very well be taken into account in such an inventory as this. Arbitrarily, if it be pleased, I am reckoning that our valuable manufacturing plant bears a relation to the specific number of workers. On this basis, and at \$2000 per worker, I estimate the value of manufacturing machinery and tools in 1916 at 14.5 billion dollars and in 1920 at 15.5 billion dollars.

AUTOMOBILES

The production of automobiles in the United States since 1913, as reported by the National Automobile Chamber of Commerce, has been as follows:

Year	—Passenger cars—		—Motor trucks—		Passenger and commercial	
	Number	Value	Number	Value	Number	Value
1914	543,679	\$ 413,859,379	25,375	\$ 45,098,464	569,045	\$ 458,957,843
1915	818,618	565,978,950	74,000	125,800,000	892,618	691,778,950
1916	1,493,617	797,469,353	90,000	157,500,000	1,583,617	954,969,353
1917	1,740,792	1,053,505,781	128,157	220,982,668	1,868,947	1,274,488,449
1918	926,388	801,937,925	227,250	434,168,992	1,153,637	1,236,106,917
1919	1,657,652	1,461,785,925	316,364	423,326,621	1,974,016	1,885,112,546
1920	1,883,158	1,809,170,963	322,039	423,756,715	2,205,197	2,232,927,628

According to advice obtained in the automobile industry 25 per cent may reasonably be added to the wholesale value in order to arrive at the retail value.

The total number of cars—passenger and commercial—built in 1917–1920 for use in the United States is given in the next table, which is derived from the previous one by deducting exports.

Year	Number	Value
1917	1,788,168	\$1,183,532,315
1918	1,106,393	1,173,013,673
1919	1,891,286	1,775,986,582
1920	2,034,432	2,021,417,969
Total.....	6,820,279	\$6,153,950,539
25 per cent added..		\$7,692,438,174

In 1916 there were registered 3,512,996 automobiles in the United States. At \$500 per car their aggregate value was \$1,756,498,000. In 1917–1920 we built for domestic use 6,820,279 of wholesale value of \$6,153,950,539 and retail value of \$7,692,438,174 (retail value being reckoned at wholesale value plus 25 per cent). In 1920 there were registered 9,211,295 cars, the aggregate value of which I estimate at \$4,594,450,000. This estimate is based on retail price less 20 per cent

per annum deduction for amortization. These figures show the large amount of money that we put annually into automobiles which we wear out, with disappearance from inventory within the period of five years. I estimate the value of the automobiles in commission in 1920 in the following way:

1916	2,391,016 at \$150 per car	= \$ 358,652,400
1917	1,788,168 at \$1,479,415,394 $\times \frac{1}{4}$	= 295,883,078
1918	1,106,393 at \$1,466,267,091 $\times \frac{3}{4}$	= 586,506,836
1919	1,891,286 at \$2,219,983,227 $\times \frac{3}{4}$	= 1,331,989,935
1920	2,034,432 at \$2,526,772,461 $\times \frac{4}{5}$	= 2,021,417,968
<hr/>		<hr/>
Total.....	9,211,295	\$4,594,450,217

The second column gives the number of the corresponding year's cars estimated to be still in use. The right-hand column gives the estimated value, allowing for depreciation.

According to the census of Jan. 1, 1920, there were then 2,146,512 automobiles, 139,169 motor trucks, and 246,139 tractors in use on the farms of the United States. These automobiles may be considered as performing a business function, distinct from use for pleasure purposes. The farmer's automobile is free from condemnation under the head of the abuse of the automobile, which in recent years has been one of the serious features in our economic life.

The subject of "The Automobile Industry and Its Future" has recently been studied by Leonard P. Ayres, vice-president of the Cleveland Trust Co. Mr. Ayres reports the automobile manufacturing capacity of the United States to have been in the neighborhood of 2,750,000 cars per annum at the end of 1920. Up to that time the total manufacture had been about 11,775,000 cars, of which more than 700,000 had been

exported, about 9,000,000 were in use and 2,000,000 had been scrapped. The average term of service is computed at six years, which I think is too high. Up to the present time the replacement market had never exceeded 500,000 per annum, but Mr. Ayres considers that there is prospect that it will amount presently to 1,500,000 per year. Even so he regards the automobile manufacturing industry as being greatly overbuilt and foresees extensive price-cutting in the competition to get business.¹

Although this is a far less optimistic view than is taken by the automobile manufacturers themselves, my own is less optimistic than that of Mr. Ayres. The automobile has, to be sure, come phenomenally into our economic life, with immensely beneficial results and coincidentally enormous abuses. Mr. Ayres considers that it is "plain that after people have become accustomed to using automobiles they will not give them up unless virtually forced to do so." That is unfortunately just what is likely to happen. Discussion of this subject is, however, properly deferred to a later chapter.

ELECTRIC LIGHT AND POWER PLANTS

I estimate the value of the electric light and power plants, privately owned, in the United States at 2.9 billion dollars in 1916. For 1917 the Bureau of the Census gave \$3,060,392,141; and for 1920 it gave \$4,058,000,000. I think that the latter figure

¹The situation in the automotive industry has also been studied by F. R. Pleasonton in a paper printed in *The Annals of the American Academy of Political and Social Science*, September, 1921. He estimates a normal demand for about 900,000 motor vehicles, both passenger cars and trucks, and does not expect that, after impending deflation has been realized, even such a rate will be established until 1924.

probably reflects more or less inflation, *i.e.*, the inclusion of new plant at war prices. The great increase in valuation from 1917 to 1920, amounting to about one billion dollars in three years tends to support that view. However, it is well known that the last five years has been a period of great electrical expansion. A recent survey of the industrial motor loads served by central stations in this country, made by the *Electrical World*, shows that on Jan. 1, 1915, the number of stationary motors served by central stations was roughly 575,000, while on Jan. 1, 1920 the number had doubled. The connected motor load was roughly 6,100,000 hp. on Jan. 1, 1915, and 12,900,000 hp. on Jan. 1, 1920. The major part of the energy developed in central stations is now distributed for power, the proportion used for lighting having been only 34.5 per cent in 1915 and only 28.4 per cent in 1919.

GAS LIGHTING PLANTS

An approximate valuation of the privately owned gas plants in the United States at the end of 1916 was 1.25 billion dollars; at the end of 1920 about 1.5 billion dollars. These figures have been estimated for me by Oscar H. Fogg, secretary of the American Gas Association. I conjecture that there is some inflation in the figure for 1920.

CANALS

The Panama Canal cost \$368,500,000. The New York Barge Canal cost \$219,898,084. Here we have a total of about \$600,000,000 in these two enterprises. According to data gathered by the U. S. Census Bureau for 1916 the cost of other canals and canalized rivers in the United States at that time had been

about \$400,000,000. This indicates a total value of the canal plant of the nation at the end of 1916 of about one billion dollars. The same figure may be estimated for the end of 1920, there having been no new canal building in recent years. Probably there will be no dissent from the comment that although the useful canals of the country may have cost something like one billion dollars, their actual value is less. Dismissing all questions respecting the Panama Canal, in view of its strategic qualities, no one will be inclined to dispute the statement that \$220,000,000 put into the New York Barge Canal was largely money wasted, and that its economic value is less than what it cost. On the other hand, the canal at Sault Ste. Marie, connecting Lake Superior with Lake Michigan, is of great economic value.

As a matter of incidental interest, the report for the Panama Canal in the fiscal year ending June 30, 1921, showed that the excess of receipts over expenditures in that year was approximately \$2,712,000, an amount "sufficient to wipe out the last of the deficit resulting from slides in early years of operation."

WHARVES AND DRYDOCKS

There is a large national investment in wharves, drydocks, lighters and cargo handling and coaling equipment, but I know of no good way of estimating this, not even approximately. However, we can get some rough ideas about the subject. In recent testimony before a New York State legislative committee a valuation of 212 million dollars was put upon the municipal wharves of New York City under control of the Department of Docks. In 1920 the tonnage of vessels entering and leaving the Port of New York was

about 50 per cent of the total for the principal seaports of the United States. If the wharves in the ports outside of New York bore a similar relation to the volume of traffic, a total of about 425 million dollars in this kind of property might be considered. This does not include the wharves at lake ports, nor drydocks, lighters, etc., anywhere. For the purpose of tabulation I may put this item roughly at 500 million dollars, both for 1916 and 1920.

IRRIGATION ENTERPRISES

Capital invested in drainage and irrigation enterprises in the United States in 1912, according to the Census, was \$360,865,270. At the end of 1916 the aggregate may be put conjecturally at \$370,000,000. At the end of 1919 according to the fourteenth Census it was \$373,683,421. For the end of 1920, we may estimate \$375,000,000.

WATER WORKS, PRIVATELY OWNED

The water supply of the cities and towns of the United States is generally furnished by the municipalities themselves, and the value of the plants for the purpose may be considered as being included in the values of real estate, just as are streets, parks and other public services. There are still a certain number of water works, however, that are privately owned. According to the "Estimated Valuation of National Wealth" in 1912, as reported by the Bureau of Census, the value of such plants in that year was \$290,000,000. The rate of increase by comparison with the enumerations for 1904 and 1900 was very small. I have been unable to obtain any data on this subject later than that of 1912. Upon this basis I shall not be far out

of the way if I estimate the value of these plants at \$300,000,000 in 1916 and at \$310,000,000 in 1920.

SHIPS

According to a recent official statement of the Bureau of Navigation of the Department of Commerce, the total documented American merchant shipping on June 30, 1921, was 28,500 vessels of 18,350,000 gross tons, as compared with 28,184 vessels of 16,324,000 gross tons in 1920, and 26,444 vessels of 8,469,649 gross tons in 1916. Sea-going vessels of 500 gross tons or over numbered 3,723 of 13,234,401 gross tons, of which 238 of 1,271,079 gross tons are ocean passenger steamers. The U. S. Shipping Board owns 1,798 ships of 7,993,771 gross tons. The Great Lake tonnage aggregates 2,850 vessels of 2,625,000 gross tons and the remainder consists of sea-going vessels under 500 tons, river steamers and smaller miscellaneous craft. Vessels of 500 tons or over registered for foreign trade numbered 2,559 of 10,620,717 gross tons of which 2,272 were steamers aggregating 10,244,746 gross tons.

In 1916 ships were worth about \$80 per gross ton. In 1918 and 1919 the value was about \$200 per gross ton, and indeed costs and prices paid were even higher than that, but during 1920 the market fell to about \$150 per gross ton. In 1921 there was a further and large decline. About the middle of the year an 8,000-ton ship was reported bought in London at \$25 per ton. In August, 1921, tonnage was offered freely to the world's buyers at \$30 to \$40, and sales as low as \$18 to \$20 were reported.

The tonnage of shipping constructed by the United States Government and the cost thereof is given in the

following table furnished to me by the U. S. Shipping Board.

ESTIMATED COST OF TONNAGE DELIVERED EACH FISCAL YEAR ARRANGED ACCORDING TO TYPE

Type	Steel	1917-1918		1918-1919	
		D. W. T	Cost	D. W. T	Cost
Cargo.....		1,045,419	\$209,083,800	3,168,273	\$674,842,194
Tanker.....		270,005	60,751,125	197,525	46,201,098
Passenger and cargo.....		9,972	2,225,000		
Refrigerator.....		28,100	7,165,500	95,700	24,403,500
Transport.....		9,000	3,375,000	44,450	16,668,750
Barge.....					
Ocean tug.....				A	4,147,000
Harbor tug.....				A	500,000
	Wood				
Cargo.....		12,000	3,000,000	762,750	190,687,500
Tanker.....				4,700	1,386,500
Finished hull.....				185,700	32,497,500
Barge and converted barge.....				52,200	8,352,000
Sailing vessel.....					
Ocean tug.....				A	1,650,000
Harbor tug.....				A	1,050,000
	Composite				
Cargo.....				42,000	10,500,000
Totals.....		1,374,496	\$285,600,425	4,553,298	\$1,012,885,997
Type	Steel	1919-1920		1920-1921	
		D. W. T.	Cost	D. W. T.	Cost
Cargo.....		4,161,392	\$886,152,691	1,131,100	\$226,220,000
Tanker.....		536,750	125,523,927	298,350	67,128,750
Passenger and cargo.....				156,000	77,441,560
Refrigerator.....		37,600	9,588,000		
Transport.....		30,325	11,371,875	96,000	36,000,000
Barge.....		11,100	1,498,500	11,100	1,498,500
Ocean tug.....		A	12,064,000	A	1,131,000
Harbor tug.....		A	1,500,000		
	Wood				
Cargo.....		346,600	86,650,000		
Tanker.....					
Finished hull.....		262,000	45,850,000		
Barge and converted barge.....		224,800	35,968,000		
Sailing vessel.....		34,500	6,037,500		
Ocean tug.....		A	1,925,000		
Harbor tug.....		A	6,650,000	A	3,150,000
	Composite				
Cargo.....		21,000	5,250,000		
	Concrete				
Cargo.....		13,500	2,835,000		
Tanker.....		15,000	3,495,000	45,000	10,485,000
Totals.....		5,694,567	\$1,242,359,493	1,737,550	\$423,054,810

A—Not computed for tugs.

According to the above table the U. S. Shipping Board up to June 30, 1921, had built 13,359,911 dead weight tons, equivalent to 8,000,000 gross tons, at a cost of \$2,963,900,725. In addition thereto, it had put \$79,087,164 into shipyards and plants.

Thus the United States Shipping Board put about three billion dollars into its efforts to establish an American mercantile marine. The major part of this enormous investment will have to be written off as a total loss, a war cost. Charles M. Schwab, former director general of the Emergency Fleet Corporation, stated recently that as much as 2.5 billion dollars should be written off. J. B. Smull, vice-president of the Emergency Fleet Corporation, in a recent address said that it was planned to discard approximately 1,400 steel ships, 636 of which were then tied up idle; and 240 salable wooden ships which had cost \$240,000,000. At the middle of 1921 about 1,000 of the Government's fleet, of aggregate 5,782,772 dead weight tons, were idle. Experienced shipping operators were quoted as saying that the Government would have to face the probability of the larger part of its fleet decaying beside the docks for lack of customers to take them. It was estimated that the Government might be able to sell from 100 to 300 of its 1,400 steel ships.

In a recent address, A. D. Lasker, chairman of the U. S. Shipping Board, said: "At the close of the war we had 10,000,000 tons of shipping. Of this amount there are about 5,000,000 tons of good ships, the remainder being only fair or unseaworthy. The good ships must be liquidated. But with American shipping in such a sickly position we cannot sell them because they cannot be operated profitably." Mr. Lasker added

the following pungent remark: "As head of the Government's greatest business enterprise, I say frankly that Government operation is poison ivy in the garden of industry."

The situation in shipping as outlined above is obviously so chaotic that any estimation of value of the American fleet at the present time is largely conjectural and may be quite controversial. The tonnage of 8,450,000 (a round figure) in 1916 may be valued roughly at \$80 per ton, or \$676,000,000. In 1921 we had a total of 18,350,000 tons, of which 8,000,000 was Government owned. The forecast that we shall have to throw away 6,000,000 tons, leaving the nation with a fleet of 10,450,000 tons and that its average value will be about \$50 per ton, or a total of \$522,500,000 looks reasonable.

At first sight it may appear paradoxical that from 1916 to 1921 we increased hugely the physical volume of our shipping and yet suffered a monetary loss in inventory in doing so. The explanation of this is that from 1914 to 1916 ships had already increased greatly in value. In 1914 Great Britain's fleet stood on her merchants' books at far less than \$60 per ton. Ships had been built to give employment in dull times at less than half that figure. The estimation of \$80 per ton for 1916 already includes a writing up. At the present time the enormous extent to which the world's shipping is overbuilt implies low market values for many years to come. By far the major part of the American Government's expenditure for ships must be viewed simply as one of the wastes of the war. It was an economic crime, a political deception, and a fraud upon the people that the building of these ships con-

tinued in full force for two years after the armistice and will not be completed until 1921 is drawing to a close, three years after the armistice. The continued absorption of material and labor for this purpose, and the maintenance of the war scale of wages had a baleful effect in delaying the readjustment in industry. This, together with the huge losses incurred in the operation of the national fleet, is simply one more illustration of the truth that in business the hand of the Government is the touch of death.

HIGHWAYS AND BRIDGES

The value of highways and bridges has heretofore been omitted from all tables of the national wealth for the reason that such properties, as a rule, have value in use only and none in exchange. In the case of the turnpikes and toll roads of former days the situation was different, but there are few highways of that character now. The value of the public roads has been omitted for the further reason that to a large extent the cost of such improvements has been assessed against property presumably benefitted, such presumption being taken into account in determining valuations for the assessment of general property taxes. Even if they be not taken into account in that way, the value of such improvements is reflected in the enhancement of real property in general. Consequently the value of the highways and bridges of the country has been correctly, I think, considered to be included in the value reported for real estate.

With the development of automobile trucking in recent years, however, an entirely new condition has arisen. The transportation of goods for short dis-

tances, and even for distances up to 250 miles, has attained enormous proportions. Highways have been rebuilt at immense expense in order to be capable of conducting such traffic. Thus, many of the trunk lines of highways in the United States have passed into an economic position analogous to that of the railways of the country, but with the difference that while the highways have been built and are maintained largely at the public expense, the state taxes levied on automobiles furnish only a small part of the cost of construction and maintenance, and even so the chief part of such taxes are paid on account of pleasure automobiles and relatively little for the commercial vehicles that carry the heaviest loads.

This introduces a complicated economic problem, which was discussed lucidly by Philip Cabot in the *Atlantic Monthly* for August, 1921. It is a serious question whether the transportation of freight for anything more than short distances, or in competition with the steam railways, be not an economic waste if all things be taken into account, including the cost of building and maintaining the highways. Without going further into this complicated question, it seems to me, however, that in the enumeration of the national wealth some entry must now be made for the investment in highways.

There is no complete inventory of the roads of the United States. The Bureau of Public Roads, Department of Agriculture, has a document, now out of print, giving the estimated mileage of roads in 1914, and its figures together with the estimated construction from 1914 to the end of 1920 are shown in the following table:

<i>Class of road</i>	<i>Mileage</i>	<i>Built</i>	<i>Mileage</i>
	1914	1915-20	1920
Brick.....	1,593	2,000	3,593
Concrete.....	2,348	9,800	10,148
Bituminous macadam.....	10,499	6,580	17,079
Macadam.....	64,898	9,800	74,698
Gravel.....	116,058	35,000	151,058
Sand and clay.....	44,154	5,800	49,954
Miscellaneous.....	17,738	2,100	19,838
Totals.....	257,288	71,080	326,368

The cost of road construction increased from 1914 to 1917 and very greatly from 1917 to 1920. According to the report of the chief of the Bureau of Public Roads for the fiscal year ended June 30, 1920, a comparison of the costs of the common types of roadways in the fiscal years 1917 and 1920 showed an average increase in the cost of brick roads from \$33,000 to \$55,000 per mile; concrete from \$21,165 to upward of \$40,000; gravel from \$4,535 to \$7,250; earth from \$2,160 to \$4,100; sand-clay from \$2,460 to \$4,100. We may take normal, pre-war costs of the several types of roads at approximately the following figures: Brick, \$28,000; concrete, \$20,000; bituminous macadam, \$12,000; macadam, \$10,000. With these factors we may estimate the total cost of these roads as they stood in 1914 and 1920 as follows:

<i>Class of roads</i>	1914	1920
Brick.....	\$ 44,604,000	\$ 100,604,000
Concrete.....	46,960,000	196,000,000
Bituminous macadam.....	125,988,000	204,948,000
Macadam.....	648,898,000	746,980,000
Totals.....	\$866,450,000	\$1,248,534,000

The total value of the roads at any given time, may be estimated at about 60 per cent of the cost. Upon

this basis the value of the roads above enumerated may be reckoned as \$519,870,000 in 1914 and at \$749,120,400 in 1920. Let us say \$750,000,000 for a round figure for 1920 and let us guess \$600,000,000 for 1916. These figures may be considered as roughly indicating the nation's plant of highways for the transportation of goods, considering them as being analogous to the railways.

According to the Calder Committee the total public road mileage of the United States at the end of 1920 was approximately 2,500,000, of which about 165,000 miles had been surfaced with gravel and 135,000 with macadam, brick, concrete, etc. From the Federal aid road appropriations of 1916 and 1918, totaling \$275,000,000 there was apportioned to the states \$266,750,000. The law requires the states to match this by at least an equal amount, but up to date the states have put up \$57 for every \$43 of Federal aid. To Jan. 1, 1921, projects to cost a total of \$350,127,085 were under construction, or completed. These projects total 21,531 miles, of which 12,060 have been completed. Allowing for the increased cost of construction during this period and for depreciation, etc., the total of \$350,000,000 is not out of line with the increase in value from 1916 to 1920, *viz.*, \$150,000,000 that I have estimated.

FURNITURE, CARRIAGES, ETC.

According to the census for 1912 the value of the furniture, carriages, etc. in the United States was about \$88.50 per person. For 1916 I think it not unreasonable to assume \$90 and for 1920 an increase of about 10 per cent, or say \$100. This is avowedly

mere conjecture, which has no other foundations than the census report of 1912 and the knowledge that a large part of the population increased its equipment during the period of extravagance in living. The estimate of \$100 per person, which is written down to pre-war prices, implies an equipment of \$400 to \$500 per family, and that seems not unreasonable. Upon these premises the nation's capital in furniture, etc., is computed at \$9,154,980,000 at the middle of 1916 and at 10.6 billion dollars at the middle of 1920.

CLOTHING, JEWELRY, ETC.

This item has to be estimated in the same way as furniture, etc. The census for 1912 showed \$44.90 per person. For 1916 I estimated \$45 and for 1920 I assume \$50. These figures give totals of \$4,577,480,000 for 1916 and 5.3 billion dollars for 1920.

STOCKS OF GOODS

This is a difficult, perhaps an impossible, item to estimate with even a reasonable degree of accuracy, yet it is the great form of the liquid wealth of the country and the immediate factor in the determination of prices and the swaying of markets. Let an emergency befall a country, its only immediately convertible assets are its stock of consumable goods and its gold, and the latter counts only because it will command goods from other countries. In the early years of the war the rise of prices in the United States was started by Europe bidding for our stock of goods. When the proletariat seized the property of the bourgeois class after the second Russian revolution the chief thing of use to itself that it secured was the

country's stock of goods. When these were consumed, the production of more goods having been gravely impaired, dire distress and poverty overtook the entire people.

In any year, the stock of goods in the United States is subject to seasonal variations and to market variations. The seasonal variations pertain mainly to the products of agriculture. The great crops are harvested in the autumn. The stock of grain is then at its maximum. It is at the minimum just before the next harvest, when it has dwindled to the "carry-over" of the old crop, whereof there is always some. Another example of seasonal fluctuation is found in the production and storing of anthracite coal, whereof the consumption is chiefly in the winter. Stocks are at the lowest in the spring. From that time until autumn the producers accumulate stocks, and so also do consumers who are induced by concessions in price to put their winter requirements early into their cellars.

In other industries—copper, for example—there is no seasonal variation and there must be on hand always large stocks of raw and finished material to act like reservoirs to insure the even running of the business. The smelter should have a month's supply of ore in his bins. Between the smelter and the manufacturer comes in the refiner, who has normally about one-fourth of the annual production, or three months output, in transit to him and in process of refining. Transit of the ingots and bars from refiner to manufacturer requires an average of half a month. The manufacturer has a month and a half supply in his own stocks and processes. Here we have seven months of production and consumption locked up normally in reserves,

in transit and in process up to the stage of delivery of primary manufactures, *i.e.*, rods, wire, sheets, etc. About half of the copper production is then ready for direct consumption as wire. Large parts of the copper production go, however, to other manufacturers, who make hardware, valves and fittings, condensers, ammunition, pins, cooking utensils and a thousand and one things. These wares pass to a more or less extent through the hands of jobbers and retailers before they reach the ultimate consumer. It is no exaggeration to say that the normal stock of copper in the United States is equivalent to something between six months and 12 months production, and more nearly the latter than the former.

Of crude and refined petroleum three months supply is regarded as a minimum working surplus. At the end of 1916 there was about 220,000,000 bbl. on hand and at the end of 1920 about the same amount.

Cold storage stocks of meat and lard at the middle of 1920 were 694,000 tons; at the middle of 1921 they were about 600,000 tons. The latter was estimated to be about 23 days supply for domestic consumption.

In the general retail trade it is common to figure that with the best management there will be four turnovers of stock annually. This indicates three months supply of goods in stock all the time. Naturally there are variations among the different lines of trade. Thus, obviously a fruit store can not carry more than a few days' supply, for the commodity is subject to spoiling. On the other hand, a hardware merchant who must carry in stock a great variety of articles in order to meet all demands will not find it possible to make anything like four turnovers per annum. The Harvard

Bureau of Business Research has ascertained that the common rate of turnover for retail hardware stores is 2.1; for retail jewelry stores only 0.9. But for wholesale grocery stores it is 6.1. Statistics collected by the Division of Analysis and Research of the Federal Reserve Board from 300 department stores showed that at the end of 1920 their stocks were on the average equal to about four months consumption. In the early part of 1921 the large chain stores of the country appeared to have from two to four months stock of goods on hand. The large mail order houses apparently have to carry about three months supply. Of course, in any business of this kind miscalculation of the market for seasonal goods, which necessitates the carrying over of winter merchandise from one year to another will have a great effect upon the total stock of goods on hand in the country at any given time.

For estimating the stock of goods there seems to be no other way than to resort to the census for 1912 as a starting point. According to this, the stocks on hand at the end of the year were as follows:

Agricultural products.....	\$ 5,240,019,651
Manufactured products.....	14,693,861,489
Mining products.....	815,552,233
Imported merchandise.....	826,632,467
	<hr/>
Total.....	\$21,576,065,840

The above total works out to about \$225 per person of the population in 1912. The reliability of the figure may be subjected to a rough test. The amount of the national income in 1912 was about 32.6 billion dollars, out of which probably about five billion dollars was saved and 27.6 billion dollars was spent for goods. The estimated stock of goods at the end of the year was

about four-fifths of the annual requirement. In other words there was nearly 10 months supply on hand. This is about what would be expected.

I must now proceed further in the field of conjecture. In this I shall not be a solitary wanderer. The census figures for 1912 on this subject are in themselves largely the result of conjecture, and that which I am going to make is of precisely the same nature.

The first effect of the demands upon us by Europe in 1915 was to cause drafts upon our stocks of goods. For some greatly needed commodities the corners of the warehouses were ransacked. It was this urgent demand that started the upward movement in prices and the profits that we realized in 1915 were largely the result of the sale of our surplus stocks on a rising market. By 1916 we had begun to manufacture on an increased scale, but not enough to replenish our stock of goods on the whole. As for many commodities we did not have any stocks at all. At the end of 1916 the stock of goods in the aggregate in the United States was relatively depleted by comparison with the normal. A conjecture of a total of nine months supply will in no way violate common sense, especially when the increase in population be taken into account. Even so, the value of the stocks at the end of 1916 may have been larger than at the end of 1913 for prices had increased from the index number of 100 to about 125.

In 1917-1920 the conditions were such as to cause further depletion. A large number of our workers were withdrawn from production and put into military service. A further large number was transferred from the production of consumption goods to the building of ships, cantonments, and such things. Both during

the war and the two years succeeding the slackness of labor curtailed production. It became difficult, and even impossible, to obtain many articles that were wanted and formerly were easily available. Often a shopper would have to visit many places in order to find the thing that was desired. Even at the middle of 1921 that condition still exists. In spite of the accumulation of stocks of certain raw materials, copper for example, throughout 1920, and of certain manufactured goods, automobile tires for example in the last quarter of 1920, it is highly probable that the total stock of goods per person in the United States was less in quantity at the end of 1920 than at the end of 1916, but the total of inventories was greatly increased, for at the end of 1920 the index number of prices was about 200, compared with 125 at the end of 1916 and 100 in 1913. If I conjecture the physical quantity of the goods in stock at the end of 1920 at eight months supply I think that again I shall be conservative.

Upon the basis of such assumptions, I may estimate the stock at the end of 1912 at \$225 per person; at the end of 1916 at \$202.50 per person; and at the end of 1920 at \$180 per person. Multiplying these figures by the number of people gives roundly 20.6 billion dollars for the end of 1916 and 19 billion dollars for the end of 1920. My instinct is that the latter figure is too high, and it may be as much as five billion dollars too high. It would be that much too high if the total stock of goods were only six months supply.

This reckoning manifestly does not take into account stocks accumulated and held by the Government. At the end of 1918 the War Department is reported to have had goods to the value of about 3.5 billion

dollars (of which about \$600,000,000 was ammunition). Up to the middle of 1921 about 1.5 billion dollars worth had been sold. These figures doubtless represent costs. Quantities on 1913 basis would probably be indicated by half the amounts.

This subject is one of the major ones awaiting research and study in the field of quantitative economics. Upon the position of the stocks of goods hang immediately the matters of prices, the banking situation, and the degree of labor employment. Yet, at this moment it seems to be insolvable. We have reached a stage where we can ascertain the major part of the stocks of agricultural produce. We know somewhat, but much less, as to the stocks of minerals and metals. We know next to nothing as to the stocks of manufactures and merchandise, which constitute by far the larger part of the total, and there does not appear to be any practicable method of accounting for them.

CHAPTER V

THE INTANGIBLE WEALTH

Wealth is defined in various ways. The older school of economists regarded as wealth only the material things—land, mines, railways, etc. Later it was learned that the definition should be broader. As good a definition as any is this: Wealth is that which has value in exchange. There are some things that have value but not in exchange and therefore are not wealth. Thus the air we breathe has value, for no one could live without it, but it is not wealth, for anyone can get it for nothing.

Wealth that has value in exchange is of two kinds, physical, *i.e.*, that which we can see or touch, and is tangible. Included with physical wealth are bonds, bills and other promises to pay, as between nations. They may, or may not, represent physical things. They are mortgages on work to be performed in the future and as such they have value in exchange.

In considering the wealth of nations it is important to make a distinction in the physical wealth, as between present and potential, or developed and undeveloped. Thus at the present time an inventory of the wealth of Germany would be large while that of Russia would be small. Yet in the same breath Germany might be described as a poor country, and Russia as a rich one; the meaning being, correctly, that Germany has but little in mines, forests and other natural resources,

while Russia has a great deal. So it is with the United States. We have immense wealth in forests, mines, grazing lands, etc. that do not appear in our inventories, or if so only to a slight extent, which nevertheless play an immense part in establishing our position as a nation of great wealth.¹

The foregoing estimates that I have made pertain only to the physical wealth of the American people, plus bills due from foreign countries. We possess also a large, intangible wealth, which represents work done and stored up just as much as railways do. Thus the publishing business of the country is worth vastly more than the real estate, machines, etc., that are used in connection with it. The mere organization for the purpose of conducting all kinds of business is a form of intangible wealth that has been acquired only by vast expenditure of work and is immensely valuable. In some respects such intangible wealth ranks among the strongest forms of property. A house may be destroyed by fire, suddenly and within a few hours, but the fame of a good newspaper, that maintains its circulation, is apt to be a lasting thing so long as law and order prevail. The value of intangible property is well recognized among persons experienced in business, and by modern economists, but it is not understood by the inexperienced, and least of all by socialists. Physical wealth may be arbitrarily and literally redivided among the people to some extent. That has been done with land in Russia. Stocks of goods may be divided. It is not so easy to divide and distribute a railway or a mine. Hence, the idea of nationalization of such property. Intangible wealth can neither be

¹ See Appendix C.

divided nor nationalized. At the first touch in any such attempt it vanishes.

Patents, copyrights and trademarks constitute an important class of intangible wealth. That these things can not be touched and physically measured does not exclude them from being properly considered as wealth. In fact the shares of corporations owning them, especially patents, are bought and sold upon a large scale. In some cases the corporation owns nothing but its patents and its organization. For example, the Minerals Separation Company, which owns patents of major importance in the art of metallurgy. In many cases the process claimed in the patents of that company enabled 90 per cent of the copper in ores to be extracted whereas previously it had been possible to get only 75 per cent.

More commonly, perhaps, patents are held by a corporation in conjunction with some natural resource. Thus, one of the most valuable mines of the United States is the Franklin mine of the New Jersey Zinc Co., but its unique ore was of relatively little value until the Wetherill process of magnetic separation was invented and made it possible to treat the ore with great efficiency. If the value of this mine were represented by 1 before the process, within a few years after the introduction of the process the value of the mine plus process was 5. Similarly there was known for many years to exist in Louisiana a deposit of brimstone, which owing to natural difficulties was unreach-able by any method of mining although the best skill was exerted in the effort. By the invention and successful application of the Frasch process a phenomenally profitable business was developed. In the organization

of the company half the stock was allotted for the property and half for the patents.

As I have previously remarked the wealth of the country in its newspapers and periodical press is far greater than is represented by the mechanical plant. A printery that is used for issuing catalogues is simply a factory, a part of the manufacturing machinery of the country, but while a newspaper may possess a factory its chief value is of another sort. I have known a periodical to be bought for a million dollars, and to have been well worth the price, which did not own any physical property outside of a few thousands of dollars worth of office equipment. In such cases the whole value is in the fame and reputation of the paper, but while that is an intangible thing it is nevertheless the result of accumulated work just as much as are constructions of brick and mortar.

Of a similar nature is the fame acquired by some special commodities and manufactures as the result of diligent and costly advertising. In that, too, there is the evidence of stored work that is just as honest and just as useful as is that of the artisan.

More elusive and less capable of being understood by the public is the wealth of the nation in managerial experience. The mines and factories of a country would have no earning power unless the people possessed the knowledge how to use them effectively. This was learned in Russia after the intelligentsia had been driven out of that land, or otherwise extinguished. There was something pathetic in Lenin's frank admission in 1920 that the proletariat did not know how to manage the agencies of production, the pathos of it being in the fact that such a terrible experiment had

had to be tried in order to teach a few doctrinaires what any intelligent man of business could have told them in advance if only they would have listened.

In the modern development of industry in the United States there has been something more subtle than the possession of the ordinary knowledge of how to do things—how to make fabrics and shoes, how to run railways, etc.—and this has been one of the accomplishments of the great corporations. I refer to the creation of organizations and the acquisition of knowledge by experience and research that permits new enterprises to be instituted with certainty of success, or innovations to be introduced in old ones.

I may illustrate my meaning by imagining the position of a mining company, whose mine is upon the point of exhaustion and abandonment. If the enterprise has been successful the stockholders' original investment has been returned to them and has been written off the company's books. But the company still has an asset of great value in its organization and the knowledge of its staff, enabling it to find, develop and operate successfully another mine. In point of fact such procedure will have been put far along before the exhaustion of the original mine. In this way even a mining company, which works with wasting physical assets, will be self-perpetuating and will realize upon its intangible asset.

I am acquainted with a great exploration company which seeks to buy only developed properties—going concerns. Such properties have certain earning capacities, which may be capitalized according to the conventional formulæ and would normally command a price equivalent to their worth. The company is

willing to pay such prices for such properties for the sake of the enhanced earnings that it can derive from them by virtue of its own superior knowledge of how to run them. It was this principle, among others, that inspired the grouping of our great corporations that began about 25 years ago.

Knowledge in itself is a commercial asset, something that commands a price. Patents that are legally valueless are often purchased just to obtain the knowledge and experience of the owners who have been applying them. In such cases it is their knowledge that really is bought, not the patent, which in itself could not be upheld if challenged in the courts. It is generally the experience that the introduction of a new process is fraught with trials and tribulations. After a while—perhaps many years—these are overcome, or disappear. There is acquired what is called a “plant sense,” which means that the whole organization has learned how to handle itself. By the time such sense—such knowledge—has been acquired it has usually cost a great deal of money; but once acquired it commands a price. Illustrations of this kind might be multiplied to great length. In considering the wealth of a nation such intangible assets are not to be overlooked, not even if they can not be physically estimated.

Now, in such an inventory of the national wealth as I have made in the previous chapters the intangible wealth of the country does not figure to anything more than a small extent. In so far as my estimates are based upon earning capacity it is of course included. This is the case with my valuation of the mines, which being derived wholly from the principle of earning capacity includes all of the patents, knowledge and

everything else that contributes to that capacity. Valuations that are founded on market quotations or transactions between buyers and sellers, such as the reckoning of agricultural land, also include all the intangible wealth that pertains to those particular subjects, for in the last analysis buying and selling transactions reflect earning capacity. The value of a tract of farm land is determined by what somebody thinks it can be made to earn just as is the value of a mine.

On the other hand, valuations that represent simply the amount of capital invested such as that for manufacturing machinery have no relation to what that capital may be made to earn, or what in fact it does earn, and take no account of the intangible assets that may contribute largely to earning capacity.

If we could have a comparative tabulation of the average market value of all the business enterprises of the country and the physical property that they use in the prosecution of their business we could form some idea of the amount of the intangible wealth. We should find it to be very large, for in general the market value of the successful corporations is in excess of the value of their plant, inventories and cash resources. If the reverse is sometimes apparently the case, the explanation is likely to be that the physical property is overvalued. Failure to understand this condition may mislead investors. Thus, in the course of the great decline in the market value of corporate securities from the time of the armistice to the middle of 1921 it was frequently pointed out by writers in the financial papers that the market prices of the shares of certain companies had fallen below the book value per share of

their physical assets, with the implication that a buyer of those shares would be getting, say, \$100 for \$80. This overlooked the probability that although plant, charged up perhaps at cost, was carried on the books at a certain value, its actual value had shrunk by virtue of altered economic conditions, and sooner or later the book values would have to be written down to conform therewith.

It is not unprecedented, however, that forced liquidation may cause securities to sell temporarily below equivalent physical value, or that increase in physical value may be temporarily overlooked by the investing public. If such things really happen, buying will soon put up the price for the shares and eventually there will be a restoration of the normal condition of a market price in excess of physical value, the difference representing the intangible assets or wealth of the concern.

On the part of the public, in so far as this principle is understood, there is a strong tendency to refuse to recognize it. Thus, the essence of the thought in instituting a physical valuation of the railways is to see that they, which are under Federal regulation, shall not earn anything in excess of 6 per cent on the capital represented by their physical value. The same notion creates a popular resentment against what are deemed to be the extravagant salaries paid to railway executives. There is a curious inconsistency and perversion of thought about this in the public mind; for while salaries of \$50,000 per annum paid to presidents administering great railway systems are viewed unfavorably the payment of a much greater annual stipend to Charles Chaplin is regarded as something quite proper and commendable.

The public attitude toward the railways has had the effect of dulling incentive in that great industry, of rendering it an unattractive avocation for young men with brilliant minds. There are no longer the opportunities for a Harriman or a Hill, for the people will not have it so; yet, if the people but knew, the railways of the country are in great need of the services of engineers and managers of a superior class. But there can be no creation of intangible wealth if the creators be not permitted to enjoy any part of it. In no branch of industry would there be any noteworthy invention or acquisition of knowledge of how to do things if it were not worth the while of the inventor and student.

I have previously mentioned how durable a thing intangible wealth may be and cited the value of a newspaper's reputation. Other citations might be made of such things as trade-marks, and even of mere names. These often have great value for many years after the excellences of the things for which they stand have disappeared, simply for the reason that the names have become fixed in the minds of the people. While a part of the intangible wealth has such lasting qualities, however, a great deal of it is extremely fragile and that is particularly so with respect to the subtle thing that I have characterized as business organization. Every now and then some great company goes to pieces just by the loss of this through stupidity or carelessness. The whole intangible wealth of a country may vanish within a few months. Following the Bolshevist revolution the first thing that Russia lost was her intangible wealth. After that was gone the destruction of her physical property began.

CHAPTER VI

GAINS AND LOSSES

As soon as it was seen that the war was destined to be prolonged it was recognized that its economic consequences would be profound. The accuracy of that forecast has already been proved, but not yet—three years after the armistice—are we able to perceive all of them or to measure closely those that we can see. We can, however, see clearly enough the fundamentals, and these are that the world, especially Europe, suffered enormously in three ways, *viz.*, humanly, morally, and materially. Even the United States, although quite free from military invasion and raids, suffered materially, as is clear from the inventories of its wealth before and after the war.

Such inventories as I have made in the preceding chapters ought not to be viewed as anything more than intelligent approximations. They are analogous to what an engineer characterizes as a horse-back survey, meaning a rough reconnaissance. But with all the faults and errors that they may have they enable a comparative view of situations at two times to be obtained that is fairly accurate and permits certain deductions to be drawn that are positive. It is to be regretted that we do not possess corresponding figures for 1914, for this study should properly cover two periods, *viz.*, 1914–1916 when Europe was at war without the United States, and 1917–1920 when the United States

was in the war and was subsequently involved directly in the settlements. Decidedly different things happened in these two periods.

Previous to 1914 the American people had been for several years realizing a gross income of about 33 billion dollars per annum, out of which they had been saving about five billion dollars per annum, which was put mainly into railways, houses, public utilities, manufacturing plants, mines, etc. Relatively small sums were put into investments in foreign countries, especially in Canada, Mexico and Cuba. We were beginning to go into South America and were contemplating Siberia. During the first period of the war, 1914-1916, our domestic business was not greatly dislocated. Of course 1914 was relatively a bad year owing first to the obligation to meet sudden and tremendous liquidation of securities and next to the interruption of our normal export trade; but 1915 and 1916 were very good years, especially the latter, by virtue of our large sales of goods to Europe at rising prices. We continued to build houses at about the normal rate, and to make the other usual improvements in our national property and our surplus of earnings above our own consumption, *i.e.*, our net earnings, were at least as large as in pre-war years and probably considerably larger. The increase was represented by the gold we got from Europe (about one billion dollars), our own securities that we bought back from Europe (about 1.7 billion dollars), and the bonds of European countries that we took (about 1.5 billion dollars), making a total of about 4.2 billion dollars that we got from Europe in 1915 and 1916. Allowing for the early months of 1917, before the United States entered the war, and for minor items

unenumerated, we may assume that the United States got about five billion dollars from Europe during this period and we would have stood enriched to that amount at the expense of Europe if the war had ended then and there.

Ah, if the war had but ended then and there! Alas! The seeds of profligacy had already been sown in 1915 and were bearing fruit in 1916, first among the profiteers who could not help profiting owing to their possession of stocks of goods that rose in value; and finally among classes of labor who were bid away from their former employments in order to make munitions of war. Hence, it is doubtful whether the savings of the country in 1915 and 1916 increased by the full amount of gold, securities and due-bills that we got from Europe. And it is certain that our system became permeated with the false ideas of rapacity, slackness and wantonness that were destined to make our behavior in 1917-1920 so wasteful.

We entered 1917 with the demoralization of the people far advanced. The early successes of the profiteers had been followed by the successful demands of labor to participate in the luxuries of high living. Already were laborers going to their work in automobiles and ceasing work for holidays whenever the spirit moved them. The railway brotherhoods had forced the enactment of the Adamson law by a cowardly Congress and an acquiescent Administration. Prices had risen largely and the cost of living had increased greatly, and much—too much—was made of that. Dismissing the exhaustive analyses of that subject, the obvious fact was that if living costs and wages had both doubled the wage-earner would be simply where he

was at the start, whereas in fact he was enjoying automobiles, phonographs, cinematographs and the luxury of leisure. It was not so much the high cost of living that was at fault as it was the cost of high living. We were squandering the gains that we had made out of the necessities and agonies of battling Europe. Out of such false prosperity there grew naturally feelings of dissatisfaction and discontent. There were quarrels over the division of the spoils. Those who had not got anything wanted something. Those who had got something wanted more. The soil became favorable for the sowing of the seeds of socialism and communism. Some people who would have abhorred those names let themselves be deluded by will-o'-the-wisps like the "new freedom."

When the United States entered the war labor was master. The railway brotherhoods had taught us what labor could do when it controlled something essential. With the nation at war everything was essential. Labor had only to ask for what it wanted in order to get it. If there were any demurrals there was the threat of a strike and the cessation of production, whereat the whole nation trembled. In order to avert such troubles peace with labor was bought. Even those good citizens among the workers who subscribed for Liberty bonds could not understand that they did harm to their own cause by exorbitant demands for wages, slackness in their work and extravagance in their mode of life.

Following the armistice was another and worse phase. After a brief period of depression, which produced some idleness but no general readjustment, Europe began to buy from us on credit, bought ex-

travagantly and bid up our markets for consumption goods. The period of 15 months—from the spring of 1919 to the middle of 1920—was the most disgraceful in the economic history of the United States. Extravagance in living and inefficiency in working were dominant factors. Conditions were at their worst at the middle of 1920, when Europe's credit became exhausted and there began in our markets the great decline, conforming to the law of supply and demand and not to the quantitative theory of money or the ideas about inflation that had led many people to think that prices would never come down.

During this period (1915–1920) almost everybody was having a good time. The standard of living was raised to a scale never before attained. Large classes of people entered upon the enjoyment of luxuries that previously had been within the means of but few. The country was supposed to be growing very rich, though how that could be happening while it was prosecuting an immensely costly war nobody paused to inquire. Indeed, some scholarly estimates appeared to show that a great increase in wealth was being made. However, it is possible to obtain a pretty clear idea of just what happened, and in fact to construct a national balance sheet, by a combination of my figures for the national wealth with those of the National Bureau of Economic Research for gross income and the estimates of capital accumulation which Prof. David Friday gives in his book on "Profits, Wages and Prices," all of which data fit together in a distinctly impressive way. Professor Friday's estimates of capital accumulation since 1912 are as follows:

<i>Year</i>	<i>Amount</i>	
1913	\$ 6,500,000,000	6,500,000,000
1915	9,000,000,000	} 23,500,000,000
1916	14,500,000,000	
1917	18,000,000,000	} 66,500,000,000
1918	22,000,000,000	
1919	15,000,000,000	
1920	11,500,000,000	
Total.....		\$96,500,000,000

Friday's estimate of capital accumulation to the amount of 66.5 billion dollars in 1917-1920 is not inconsistent with my estimate that the physical wealth of the United States increased but little, if at all, during that period. In the first place Friday included in his estimate the savings of farmers to the amount of "over four billion dollars in 1917, while in 1918 they exceeded five billion dollars, and in 1919 amounted to nearly that sum." During this period, according to Friday, farmers were paying off their mortgages and their indebtedness at a rapid rate. Insofar as the farmers' savings found their way to the investment market, through the extinguishment of their indebtedness, they were already included in the total. However, Friday considered that the greater portion of the farmers' savings went into farm improvements. In my inventories I have shown some gain in wealth by the farmers but not so much as Friday indicates.¹

¹ It is possible that a part of the discrepancy between the surplus accruing to farmers as estimated by Friday and the increase in inventory according to my reckoning is explainable by the investment in securities by farmers. Some of these investments, such as government bonds, were sound. But no doubt the farmers lost a good deal of money foolishly. Richard Spillane recently said in the *Public Ledger* of Philadelphia that it is estimated by bankers of the Middle West that the horde of swindlers who swept through the agricultural country in the flush days of 1919-20 selling fake stocks robbed the farmers of two billion dollars. The figure may be nothing but a wild guess, but the idea that it aims to bring out is surely true.

The figures given by Friday for 1917 and subsequent years were before deducting our war expenditures. "If the Government had not taken these sums by extra taxes they would have been available for investment, either in government bonds or in corporate securities." That, of course, is true, but the Government did take them and spent them in prosecuting the war, wherefore net earnings became wastes instead of capital accumulations. So far as yet known, the direct cost of the war to the United States was as follows, the figures being brought down to Jan. 1, 1921:¹

Military cost, as per Secretary Houston.....	\$24,010,000,000
Extra governmental costs, as per Secretary of Treasury..	4,500,000,000
Red Cross contributions.....	978,512,225
Other relief funds.....	700,000,000
	<hr/>
Total.....	\$30,188,512,225

In addition to the above we let Europe have goods and credits to the amount of \$10,141,000,000 which is now owed to us. Our total expense was therefore about 40.3 billion dollars. But, furthermore, the officials of Court of Claims expect over two billion dollars of claims against the government will be filed during the next few months. Contracts for millions of dollars of war munitions were cancelled following the armistice. Also, there is the claim of the railways for about one billion dollars. Therefore, it is not yet known positively just what was the cost of the war.

All of the above figures are expressed in terms of inflated prices, or in "fifty-cent dollars" as is sometimes said. After making these deductions, the residue should appear in the form of plant extensions and the

¹ See estimate of F. A. Dolph, submitted to the U. S. Senate in the *Congressional Record*, March 5, 1921.

purchase of materials and supplies (inventories) and houses, automobiles, etc. by the corporations, business men, farmers and workers who saved it. In fact the apparent gain has disappeared through the shrinkage of inventories and the uselessness of much of the plant into which the money was put. The position may be summarized as follows:

NATIONAL BALANCE SHEET, 1917-1920

Debit

Cost of war.....	\$30,200,000,000
Gain in physical inventory.....	4,400,000,000
Foreign balance ^a	17,800,000,000
To be written off ^b	14,100,000,000
	<hr/>
Total.....	\$66,500,000,000

^aPartially, probably largely, of doubtful value.

^bIncludes shrinkage in value of stocks of goods and writing off of physical property of no further usefulness; also the writing down of property preserved but built at inflated costs; also farmer's accumulations over-estimated.

Credits

Net earnings

In 1917.....	\$18,000,000,000
1918.....	22,000,000,000
1919.....	15,000,000,000
1920.....	11,500,000,000
	<hr/>
Total.....	\$66,500,000,000

In brief, the whole supposition about the United States becoming rich out of the war was founded upon the writing up of annual profits in terms of steadily rising prices and subsequently neglecting to offset them by the shrinkages on a falling market and failing to take into account the cost of the war itself and the consequential losses that ensued. If from Friday's estimated savings of 66.5 billion dollars in 1917-1920 we deduct something considerable for farmer's accumu-

lations over-estimated, then 30.2 billion dollars for the direct cost of the war, then 17.8 billion dollars debit balance of the rest of the world to us, and if then we write down the remainder to terms of 1913 dollars and write off some more for what we have put into constructions now useless we shall come pretty near to what I have already shown by inventory and we shall come still nearer if allowance be made, as I have made it, for the deterioration that we suffered in the property that we possessed before the war. The result could not indeed be otherwise. With no substantial increase in the production of raw materials and with no improvement but rather an impairment of our labor power in manufacturing and handling those materials we could not engage in a terrific war, with all of its wastes, and grow rich at the same time. What we really did was apply our earnings to warfare and neglect the upkeep of our former property in the meanwhile. Any figuring to the contrary is merely an illusion of inflation. It will be clear to anybody that the wealth of the United States could be caused to appear to have increased by writing up values, but it is equally clear that this would not add anything to the number of houses or repair the deterioration of the railways. It may be remarked in this connection that the writing up of real estate values for taxation purposes is going to produce a condition that will plague us.¹

Equally fallacious is the idea that the war increased prosperity and raised the scale of living. Even so

¹ The 57 principal cities and towns of Massachusetts reported real estate valuation of \$3,617,646,289 in 1921, compared with \$3,456,075,448 in 1920. The assessment of real estate in the City of New York for 1922 is \$9,947,323,092, compared with \$8,626,122,557 in 1920, \$8,207,822,361 in 1916, and \$8,006,647,861 in 1913.

discerning an analyst as Friday quotes approvingly a story of a charwoman who said to a charity worker: "This war has made many a happy family, sir." Of a similar nature is the anecdote of the wife of a profiteer, who remarked to a friend: "My husband says that if this war lasts six months more, he does not care if there is never another one." It is of course undeniable that many people enjoyed luxuries as never before, but this was at the cost of housing and transportation facilities and other material things. For a while, we got along by drawing upon our normal and necessary surpluses of such things, living upon our fat so to speak, and later when we began to let our property run down we began to live on our principal, or to continue the previous analogy, upon our tissue. The consequence was the development of what in pathology is called acidosis.

In 1915-1916 we really did make some gain at the expense of Europe, however, and here also my previous indications are not out of tune with Friday's estimates. At our pre-war normal rate of earning and saving we should probably have accumulated about 10 or 11 billion dollars in those two years. We got about five billion dollars from Europe by the sale of our goods, which in part may be recorded as something extra, but only in part, for even then we were applying those proceeds to the extension of plant for war purposes, which we reckoned deliberately would have to be thrown away. Even if the war had ended with 1916 we should have found our metallurgical and manufacturing plant greatly overbuilt. Friday estimates the national accumulation of these two years at 23.5 billion dollars, which includes the writing up of things

by virtue of rising prices and omits any writing down. Making due allowances for those conditions there will be no very great discrepancy in the two estimates, as I have said. Working backward in this way we may arrive roughly at an estimate of 235 billion dollars to 240 billion dollars for the national wealth at the end of 1912, which may be compared with the census estimate of 188 billion dollars for that year.¹

As for what happened after 1916 an analysis of the inventory in comparison with that for 1920–1921 is illuminating and instructive. This is made by grouping the several items as is done in the accompanying table. This does not indicate the position of any classes of people, and is no intimation of ownership, but simply is a grouping of things. Public utilities and some minor items are omitted.

In automobiles, furniture, etc., clothing, jewelry, etc., we gained about five billion dollars. This group comprises things that are consumed with more or less rapidity and which depreciate rapidly in value once they have been put into use. A good deal of what is comprised in this group, including a large part of the automobiles, may be classed as luxury goods.

In farm lands and buildings, farming implements and live stock—in general the things pertaining directly to the agricultural industry of the country—we also had a gain. The actual gain of this branch of the industry was greater than is indicated by the figures grouped for it, for a large portion of the items assembled in the first group, especially the automobiles, pertain

¹ I regard the census estimate for 1912 as being much too low. It is largely a projection forward of the data of earlier censuses and it does not withstand critical analysis. I hold my work in Chapter III to be quite convincing on this subject.

to the farms and farmers of the country. All of this does not necessarily imply an improvement in the position of the farmers, for although agricultural property increased in value the farmers may have mortgaged it more extensively to other people. On the other hand the farmers, themselves, may have acquired liens on the national earning capacity through

THE PRINCIPAL ELEMENTS OF PHYSICAL WEALTH IN THE UNITED STATES
BY GROUPS

	1916	1920
Automobiles.....	\$ 1,756,498,000	\$ 4,594,450,000
Furniture.....	9,154,980,000	10,600,000,000
Clothing.....	4,577,490,000	5,300,000,000
Total.....	\$ 15,488,968,000	\$20,494,450,000
Farm lands.....	\$ 52,398,000,000	\$54,903,586,200
Farm buildings.....	12,160,000,000	11,287,500,000
Farm implements.....	1,600,000,000	1,773,750,000
Live stock.....	7,679,472,000	7,070,189,000
Total.....	\$ 72,837,472,000	\$ 75,035,025,200
Houses.....	\$ 68,500,000,000	\$65,120,000,000
Mines.....	3,880,000,000	3,269,000,000
Railways, steam.....	24,500,000,000	25,500,000,000
Railways, electric.....	5,361,734,000	4,000,000,000
Total.....	\$102,241,734,000	\$97,889,000,000
Machinery.....	\$ 14,500,000,000	\$15,500,000,000
Meat packing plants.....	250,000,000	350,000,000
Pipe lines.....	400,000,000	608,000,000
Tankage.....	50,000,000	60,000,000
Tank cars.....	63,000,000	180,000,000
Power plants.....	2,900,000,000	4,058,000,000
Total.....	\$ 18,163,000,000	\$20,756,000,000
Gold.....	\$ 2,450,516,328	\$ 3,223,351,644
Silver.....	763,218,469	600,000,000
Total.....	\$ 3,213,734,797	\$ 3,823,351,644
Stocks of goods.....	\$ 20,600,000,000	\$19,000,000,000

their holdings of Liberty and Victory bonds. An attempt will be made later to examine their position. For the present I limit myself to the remark that the estimates of wealth indicate that the farmers fared better than other people in spite of their losses and loud complaints in 1920.¹

In manufacturing machinery, tools and power plants we gained a good deal, though not so much as is commonly supposed. We gained substantially in electrification and in our facilities for the use of petroleum, which will be materially to our advantage in the future. After all the necessary writing off has been done we shall still possess considerably more general equipment than we had in 1916 and there will be ample for the employment of the increased number of workers. The latter will not amount in numbers to the maximum at work during the war period. A good many of the factory workers will return to general building and a good many will go back to the farms.

In our holdings of gold we also have on record a large increase, and the quantity has been swollen further during the last six months. At present time the United States possesses about three-eighths of the world's estimated total supply of gold, and the concentration of this vast quantity in one country is one of the great economic concerns of the ages.

¹ According to the last census the farmers of the country had \$77,925,-989,073 in farms, live stock and implements. This was an average of \$12,085 per farm. Besides this property they had large holdings of automobiles and extensive investments in Liberty Bonds, Victory Notes and other securities, besides savings bank deposits. On the other hand their farms were mortgaged to a certain extent. Nevertheless it is probable that the average wealth per farmer is larger than the average wealth per family of the whole population. This subject is discussed more fully in the light of later study in Appendix E.

It is in the group comprising buildings, mines, and railways, that the most serious development is found. Herein there is an estimated loss of nearly 4.5 billion dollars, and this is among the things that comprise many of the important items of our capital goods, *i.e.*, the plant whereof the use adds to our wealth. Our buildings have become impaired, our steam railways have run down, and the position of our street railways has become all but tragic.

In stocks of goods, we have also experienced a serious shrinkage. I have estimated contraction to the amount of 1.6 billion dollars, but as I have previously pointed out, the actual amount of depletion may be considerably greater than that.

In the aggregate my estimates for the internal wealth of the country come to a little more than 268 billion dollars at the end of 1916 and 272 billion dollars at the end of 1920, there being an apparent gain of about 4.4 billion dollars. If it were possible to make a more exhaustive investigation and a stricter analysis I think it likely that this apparent gain would disappear, for in the estimate for 1920 I have been on the whole rather liberal with respect to uncertain items, and I think moreover that in some cases necessary reductions to the terms of the dollar of 1913 have escaped attention. But, anyhow, it may be safely deduced that from 1916 to 1920 the physical assets of the United States increased to only a trifling amount, if in fact they increased at all.

Of our internal wealth, Europe possesses about 2.5 billion dollars in the form of American securities. The United States owns property to the estimated value of about four billion dollars in foreign countries. There

is due us from Europe about 1.8 billion dollars on funded indebtedness, about 2.9 billion dollars on unfunded indebtedness and about 11 billion dollars on obligations to the American Government, the last being for advances to foreign governments during the war and interest subsequently accrued. How much of the last we shall collect nobody now knows. Great Britain will undoubtedly pay her indebtedness in full. The other countries will want to do so, but it is questionable whether they can. Some of the distinguished economists of Europe say that they will be unable to do so.

Thus, John Maynard Keynes in a recent article entitled "America and Cancellation" in the *London Sunday Times* said:

"The sum which Great Britain owes to America is one which, if necessary, Great Britain can pay. But it is not likely that the sums that the other European Governments owe America can be repaid in any case. It is right that American opinion should face this distinction. There are reasons of material self-interest for cancelling the European debt which do not apply to the British debt. Arguments for all around cancellation are partly trade arguments and partly on grounds connected with the origin of the debt which are not chiefly economic."

Whether the United States ought or ought not to cancel the foreign bills that are owed to our Government is a subject that will be discussed in the next chapter. For the present let us conclude that we must anyhow regard a substantial part of our foreign book assets as accounts due us that are of doubtful collection.

CHAPTER VII

THE ALLIES' DEBT

After the entry of the United States into the War the American Government made advances to the allied governments to the aggregate amount of \$10,141,267,-585. No interest on this has yet been paid. The accrual up to the middle of 1921 was about \$945,000,000. At that time, therefore, the allied governments were in debt to the government of the United States to the amount of about 11 billion dollars. This was contracted mainly in the purchase of supplies in this country. In the inventory of the external wealth of the United States in Chapter III, this indebtedness was entered as an asset, but doubt was expressed as to its realization, and it was intimated, moreover, that perhaps we ought not to expect it. John Maynard Keynes has been quoted as holding the opinion that Europe could not pay it. The suggestion that it ought to be cancelled has been made in numerous quarters. The funding of this indebtedness is one of the measures immediately before Congress.

The obligations of foreign governments to the United States are divided as follows:

<i>Country</i>	<i>Total obligations</i>
Armenia.....	\$ 11,959,917
Austria.....	24,055,708
Belgium.....	375,280,147
Cuba.....	9,025,500
Czechoslovakia.....	91,179,528
Esthonia.....	13,999,145

<i>Country</i>	<i>Total Obligations</i>
Finland.....	8,282,926
France.....	3,350,762,938
Great Britain.....	4,166,318,358
Greece.....	15,000,000
Hungary.....	1,685,835
Italy.....	1,648,034,050
Latvia.....	5,132,287
Liberia.....	26,000
Lithuania.....	4,981,628
Poland.....	135,661,660
Rumania.....	36,128,494
Russia.....	192,601,297
Serbia.....	51,153,160
Total.....	\$10,141,267,578

Great Britain, like the United States, made large advances to other countries during the war. The debts owed by her allies to Great Britain are: Russia, \$2,245,600,000; France, \$2,228,000,000; Italy, \$1,907,-200,000; Belgium, \$413,600,000; Serbia, \$88,400,000; other nations, \$331,600,000; the dominions, \$576,000,-000; total \$7,790,400,000.

According to the general budget for 1922, the internal debt of France amounts to 229 billion francs, normally \$44,197,000,000, currently \$16,717,000,000, and the foreign debt to 35 billion francs. The latter is partly offset by 14 billion francs due from various small countries. France owes England about 13 billion francs and the United States about 15 billion.

Russia's debt at the beginning of 1914 amounted to 9,888,310,000 rubles, or about \$5,092,379,650, at a rate of \$0.515 to the ruble, which prevailed at that time. Subsequently Russia contracted various debts abroad for conduct of the war, and these loans, together with internal bond issues, brought the state debt up to 32.3 billion rubles (about \$16,634,500,000) on Sept. 1,

1917, just before the Bolshevik revolution. The amount of the foreign investment in commercial enterprises in Russia can not be ascertained. Some recent unofficial figures showed that the French government and French individuals had an aggregate investment in Russia of about 22 billion francs.

Of our foreign national debtors, Great Britain is the most important, but Great Britain herself is a large creditor of other nations on account of war advances. If she could collect her own debts she could easily pay us out of the proceeds. But even without such collection Great Britain may be expected to pay us, anyhow, sooner or later. If we should cancel our credits of this nature, Great Britain would be bound morally to do likewise. The whole question is, therefore, one that is chiefly between us and the countries of continental Europe.

The matter of these debts involves questions of both policy and equity. It may be right that Europe should pay us in full, but the payment may develop conditions that will be disagreeable to us. Europe can not pay us with gold, for she has not got it. Even if she could, a further addition to our holdings that are already stupendous would be useless to us and might be dangerous. Practically, Europe can pay us only with goods, especially manufactured goods. But a great influx of cheap goods, advantageous to us in itself, might, nay probably would, produce dislocations in our own manufacturing industry. Foreseeing this it is contemplated to increase the tariff on foreign importations. Manifestly, however, we can not expect Europe to pay her indebtedness to us and at the same time cripple her only means of doing it.

Moreover, the existence of this huge debt to us on the part of the countries of Europe will keep rates of exchange at low levels for many years, in spite of the best they can do to send goods to us, and will impair their ability to buy from us the surpluses of raw materials, especially wheat, cotton, copper, and petroleum, that we are bound to make and must sell if those industries are to be operated at anywhere near the capacity for which they are developed. This influence has not yet exhibited itself, except perhaps in speculative anticipation, for none of this debt, either principal or interest, has yet been remitted to us; but as soon as that begins this will inevitably be a potent factor.

Such considerations indicate some of the major reasons why it may be politic for us to cancel this debt, in whole or in part. Quite aside from considerations of policy, however, are those of equity, and by equity I do not mean legality, for there is no question about the debt being legally owed and fully recognized. It is simply the question whether the exaction of full payment is quite square.

The United States went into the war because it had to in order to protect its future welfare. Great Britain went into the war at the beginning for the same reason, but while the British quickly foresaw the meaning of German aggression, it took the United States more than 2½ years to do so. In the meanwhile the Allies were fighting our battle as well as their own, and we were profiting materially—to the extent of about five billion dollars—as I have estimated in a previous chapter. After we joined them in the war we gave them credits out of which they bought goods of us for the purpose of

prosecuting the war. As I have shown, the physical wealth of the United States did not increase materially during this period. We diverted to warfare the surplus of goods and labor, the surplus over and above what we required for living, instead of using it to build railways, houses, etc. Most of this surplus we, ourselves, employed, marking it up on our books at high prices, and a portion of it we sold to our European associates, also at high prices. Roughly, the scale of prices was about twice that of 1913.

Therefore, if we exact full payment of the face of the debt, and secure it, we are going to get the benefit of inflation of prices that we have already lost, or are losing, within our own national confines, and we shall get it at the expense of our associates, who were fighting in the common interest. I may perhaps clarify the idea by reference to a purely internal affair. A part of our own national war expense was the building of a great fleet of steamships at total cost of about three billion dollars, the average cost of the ships constructed having been upward of \$200 per deadweight ton. Following the war some of these ships were sold to private parties at about that price, the notes of the purchasers being accepted. Since then there has been a *debâcle* in shipping, which has declined to \$30 or \$40 per ton, and we see that we shall have to write off two-thirds or three-fourths, or perhaps more, of this investment as a war cost. In doing so, shall we hold the unfortunate, early purchasers of a few ships to their bargains? Already they are pleading for abatement of their obligations, and if that be granted it will not be without ordinary commercial precedent. But quite apart from precedent, why should not we write down as a war

cost the indebtedness of Europe to us just as we have to do with our ships?

In internal business we add nothing to our wealth by inflation. What is apparently gained is actually lost by subsequent deflation, as I have amply showed in these pages. We gain really only when we sell goods externally at inflated prices, buy nothing in exchange and accept promises to pay which become due after deflation has come about. In speculative transactions we might properly congratulate ourselves over such an outcome, but as the result of a joint defensive interest in a calamitous war, not so. The fact that the expenses of our associates were increased by our own dilatoriness, *i.e.*, if we had gone earlier into the war it would have ended earlier, is also worthy of consideration.

We may come to the following conclusions respecting this debatable subject:

1. The writing down of the debt of 10 billion to five billion would be reasonable and fair.
2. The cancellation of the remaining five billion on the ground that we had made about that amount out of the necessities of Europe in 1915–1916 would be generous and chivalrous.
3. The total cancellation of the debt may be to our self-interest by bringing about an earlier economic readjustment.
4. A part of the debt we shall not be able to collect anyhow.
5. The part that we shall collect, if we insist upon it, will be slow in coming to us. There is no disposition to press for early payment, and certainly there should be no such pressure.

6. Whatever be the decision it is certain that this debt ought not to be reckoned as anything but a deferred or doubtful asset in an inventory of the national wealth.

At the present time there is among American economists and financiers a difference in opinion as to the cancellation of the debt that is owed by European nations to the American government for advances on account of the war. Among the people at large however the sentiment is all but unanimous in opposition to any proposal of that nature. Nevertheless it may be foreseen that the force of circumstances will eventually compel such a step irrespective of any likes or dislikes. This may be logically expected as one of the consequences of the immense debt with which the world has saddled itself.

According to O. P. Austin, of the National City Bank, the indebtedness of the world increased from \$43,362,000,000 in 1913 to \$382,634,000,000 in 1921. Interests charges have risen from 1.5 billion dollars to 15 billion dollars. These figures have been converted into dollars at the pre-war normal value of their currencies. Inasmuch as the debt is payable in the remote future, there is no other practicable way of stating its full amount. In addition to the bonded indebtedness there is an enormous volume of paper currency outstanding in many of the European countries which is also really a part of the public debt.

Mr. Austin's enumeration includes both the external and the internal debts of the several countries. Economically these stand in quite different positions. Through its external obligations one country may command physical wealth from other countries. Inter-

nal obligations imply neither increase nor decrease in physical wealth, or the ability to command it. A nation may create an immense internal debt while its physical assets remain just what they were. It does not follow from this, however, that an internal debt is a matter of no importance, or that it is not a burden for the reason that the people owe it to themselves. The fallacy in any such thought is that it considers the people only as a whole and disregards the effect upon groups of people or individuals. If every individual held a portion of the internal debt in exact proportion to his wealth, and if every individual paid taxes in the same proportion, cancellation of the debt would create no disturbance, for each individual would save in taxes what he would lose in interest. However, that situation does not exist, and is impossible; and practically the existence of an internal debt implies a re-distribution of wealth, which may have violent effects on the national welfare, and indeed has had such effects. That the nations of the world will ever liquidate the entire amounts of their debts, external and internal, and their issuances of currency which are of the nature of debt, is doubtful. No solution of this problem has been offered.

As between nations the concern is to what they owe each other. France, for example, owes an immense sum to the United States. France on her own part is looking forward to recouping herself out of the German reparations. We fall back therefore, in large degree to the question whether Germany can pay. Obviously the only method whereby Germany can pay is to work hard in the production of goods for the use of other countries. What that means for those countries is

clear, namely, unemployment for their workers who are being undersold by the Germans. This is the meaning of the depreciation of the German mark, which affects not only the credit of nations but also affects the open markets of the world and reduces the opportunities for the disposition of American goods in them.

The German debt on reparation account was fixed by the London agreement at 132 billion gold marks, plus the Belgian debt which amounted to about 2,500,000,000 francs in gold. The annuity amounted to two billion gold marks per annum, plus a tax of 26 per cent on exports. Bonds in three series were to be issued to cover the remaining obligations. By the supplementary Wiesbaden agreement as between Germany and France, Germany was permitted to pay in goods up to the value of one billion gold marks per annum, to a total of seven billion gold marks. This compromise was brought about by the obvious inability of the Germans to continue their reparation payments in full in gold.

It would be foolish to disregard the inevitable effect upon the commerce and industry of the whole world of the activity of a highly organized industrial nation of 70,000,000 people when compelled to produce goods for export, under strain and at the sacrifice of their own previous scale of living. The allies said practically to Germany "It is your fate to work for us, produce the goods that the world wants and pay to us everything above your bare living expenses in satisfaction of our claims for the damage that you have caused us." But in making that demand they overlooked the obvious, *viz.* that the enforcement of such a policy

meant intense industrial activity in Germany at the expense of the rest of the world. In other words that they were compelling Germany to do much of the work with which their own people ought to be occupied, and were dooming their own people, to a more or less extent, to idleness in default of ordinary means for occupation.

CHAPTER VIII

THE DIVISION OF WEALTH

John Maynard Keynes in his "Economic Consequences of the Peace" gave the following description of the psychology of capital accumulation under the present system:

"The immense accumulations of fixed capital which, to the great benefit of mankind, were built up during the half century before the war, could never have come about in a society where wealth was divided equitably. The railways of the world, which that age built as a monument to posterity, were, not less than the Pyramids of Egypt, the work of labor which was not free to consume in immediate enjoyment the full equivalent of its efforts.

"Thus this remarkable system depended for its growth on a double bluff or deception. On the one hand the laboring classes accepted from ignorance or powerlessness, or were compelled, persuaded, or cajoled, by custom, convention, authority and the well-established order of society, into accepting a situation in which they could call their own very little of the cake that they and nature and the capitalists were coöperating to produce. And on the other hand the capitalist classes were allowed to call the best part of the cake theirs and were theoretically free to consume it, on the tacit underlying condition that they consumed very little of it in practice. The duty

of 'saving' became nine-tenths of virtue and the growth of the cake the object of true religion. There grew round the non-consumption of the cake all those instincts of puritanism which in other ages has withdrawn itself from the world and has neglected the arts of production as well as those of enjoyment. And so the cake increased; but to what end was not clearly contemplated. Individuals would be exhorted not so much to abstain as to defer, and to cultivate the pleasures of security and anticipation. Saving was for old age or your children; but this was only in theory. The virtue of the cake was that it was never to be consumed, neither by you nor your children after you."

This looks like a brilliant summation, and it has been quoted approvingly, but just what it means I do not know. Does anybody? What is an equitable division of wealth? The only rational interpretation of Mr. Keynes' summary of which I can think is the idea that if national earnings had been immediately distributed everybody would have had more enjoyment. But such a thought overlooks the probability, nay the certainty, that by such procedure the national earnings themselves would have shriveled and perhaps vanished entirely. Ill-managed corporations have tried the plan of distributing everything immediately to their stockholders. The common experience has been failure of the corporation. In point of fact accumulated wealth as soon as possible accrues to the benefit of the stockholders in the form of increased dividends, and their beneficence spreads to and improves the condition of all workers.

The thought is expressed even by conservative

economists, not merely by socialists, that the state of society would be improved by a "more equitable division of wealth." This may be analyzed into two ideas, first, that the present division is inequitable, and second, that the common welfare would be improved by something different. The first of these ideas shows blindness to the methods of creating wealth. It looks upon the natural resources of the world as being the only original element of wealth and considers that because some people have land and others have not there is something inequitable in the division of land. This takes no account of the part that mind plays in the creation of wealth. It ignores the existence of intangible wealth, a subject upon which I have dwelled in an earlier chapter.

At this moment the air of the atmosphere is free to everybody. Anybody can have as much of it as he desires. It is not even wealth, for it has no value in exchange. But even now the air is becoming a great source of nitrogen for the manufacture of fertilizer for our soil. Inventive and creative minds will find a source of great wealth in such production. How will there be any more equitable distribution of such wealth than the retention of it by those who created it? This illustration is not chimerical, for the extraction of nitrogen from the air is already an art that has attained large proportions. In 1912, the world's production of nitrogen in all forms was 715,678 metric tons of which 32,342 were derived from the air, while in 1920 the world's total was 1,555,300 tons, whereof 671,300 tons were won from the air.

I may give another illustration from the metal mining industry, one of the great basic industries,

with which I am especially familiar. One of the most important and most profitable branches of metal mining is copper mining. I have given figures showing its magnitude in the United States. The bulk of the great production in 1916 and subsequent years was derived from mines that would not have existed as producing and profitable enterprises at all had it not been for improvements in the arts of mining and metallurgy effected within the previous 10 years.

As recently as 1906 so astute and distinguished an authority as J. R. Finlay viewed the Anaconda mines as decadent owing to the impoverishment of their ores, yet since then we have seen them ascend to greater production and profit than ever before. This was due distinctly and entirely to the most brilliant exhibition of mind that has been witnessed in any industry in modern times.

In 1906 the vast deposits of copper ore that are now the source of a major part of the American production, classed generically as the "porphyry" mines, were useless to anybody. They had been known for decades, they were practically free to acquisition by anybody, but their copper contents were too small to be profitably extractable. Some engineers who were then poor men conceived their exploitation by new methods. In order to carry them out they had to tempt investors to supply fabulous sums of money, as much as \$10,000,000 for the equipment of a single mine. These investors had to wait years for any return, during which it was uncertain whether they might not lose all the money they had risked, for they were adventuring in an untried field.

These great increases in the national income were

made by mind, with the aid of capital, without which the mines of Butte would today have been nearly dead and the porphyries would not have been born. They were in no wise at the expense of wage-earners, nor have the latter any claim upon them beyond that which economic law gives them, and what it does give they have received. Their ability to work has been greatly increased and they have got higher wages for their work. Thirty years ago the common rate of wages for miners in the Rocky Mountains was 30 cts. an hour. During the nineties it rose to 37 cts. in Butte. During the next decade it rose to 47 cts. In 1916 it was 60 and 65 cts. During the last 10 years wages were paid largely on a sliding scale, according to the price for copper, whereby the wage-earner has participated in the increased profits of the employing companies. The Butte scale governed, to a more or less extent, the wages in other districts, with modifications according to living conditions, character of work, etc. Labor's great gain in mining has been due to mind, aided by capital, enabling it to produce more. Without mind and capital it would not have had any gain. With mind and capital both of them profited greatly, but labor profited most.

The inventory of the wealth of the United States shows how little of the wealth of a country is of use without work. The houses of this country would continue to afford protection against the weather, to be sure, but there would be nothing with which to keep their occupants warm and fed except the stock of goods, whereof the aggregate of everything is not more than 6- to 10-months supply. The stock of clothing would soon be worn out and the people would then

have nothing wherewith to cover themselves if they did not work to produce more. The gold and silver of the country would be the most useless of all things if industries ceased. The mines, railways and factories are valuable, but they will not feed or clothe anybody unless use be made of them. The picks and shovels of a contractor, which are unproductive in the storehouse, but enable the performance of work when they are in the hands of men, epitomize the whole thing. If all the goods that are immediately available at any time for the satisfaction of human wants were divided among all the people they would last only a few months, after which there would be hunger, cold and misery unless new supplies were produced. This is no mere hypothesis of the economist. Both Mexico and Russia have experimented in the subject, with the same results, which in each case have been in strict conformity with the theory.

An examination of the inventory of the national, internal, physical wealth as it was at the end of 1920 will afford an understanding of the situation. Owned by the people generally, as public utilities, are the following things:

Real estate.....	\$15,000,000,000
Highways.....	750,000,000
Canals.....	1,000,000,000
Irrigation enterprises.....	375,000,000
	<hr/>
Total.....	\$17,125,000,000

Publicly owned also are large proportions of the gold and silver, and the wharves and drydocks. Widely distributed among private ownership are land and buildings for residential purposes, automobiles, furniture, clothing and jewelry.

The farmers own the following:

Lands.....	\$54,903,586,200
Buildings.....	11,287,500,000
Implements.....	1,773,750,000
Live stock.....	7,070,189,000
Total.....	<u>\$75,035,025,200</u>

The farmers participate in the property previously enumerated as general. Their ownership of automobiles constitutes a rather large percentage of the total. However, the wealth of the farmers, as of Jan. 1, 1920, according to the census, was mortgaged to other people to the amount of about four billion dollars.

Owned especially by the corporations and business interests are the following:

Mines.....	\$ 3,269,000,000
Railways, steam.....	25,500,000,000
Railways, electric.....	4,000,000,000
Express companies.....	34,691,199
Manufacturing machinery and tools.....	15,500,000,000
Meat packing plants.....	350,000,000
Telephones and telegraphs.....	1,800,000,000
Pullman cars.....	150,000,000
Tank cars.....	180,000,000
Petroleum pipe lines.....	608,000,000
Petroleum tankage.....	60,000,000
Light and power plants.....	4,058,000,000
Gas lighting plants.....	1,500,000,000
Waterworks, privately owned.....	310,000,000
Total.....	<u>\$57,319,691,199</u>

The stocks of goods are owned partly by the producers, including the farmers, partly by the manufacturers who fabricate raw materials, and partly by the merchants, wholesale and retail, who distribute the finished products. While the titular ownership is thus mainly with those classes, to a large extent liens

on the stock of goods are held by the bankers whose main business is such financing.

It is a prevalent misconception that the possession of great wealth is an evil which ought to be mitigated by income and inheritance taxes, or ought to be redivided as has been tried in Russia. The truth is, in the words of C. W. Barron, that "capital increase means railroad and transportation expansion; more transportation and better transportation and cheaper transportation. More capital means more coal mines and thus more coal; more oil wells and thus cheaper fuel and cheapened transportation; more wheat and corn fields; more cattle and pork and thus cheaper food. Cheaper food means more vital energy in the arms of the people; more and larger homes and houses. More saved and invested wealth means more happiness for all. Great fortunes can not be eaten or worn by the possessors. They are for the most part put in productive enterprises, and their fruitage reinvested, employing more labor and steadily raising the price of labor while steadily falls the cost of living. Thereby, the accumulation of capital is easier, and the standard of living is raised.

"There can be no such thing as too much capital accumulation or too great personal fortunes. All power and all wealth can be put to an evil service. There is nothing in the world that is good but that can be reversed into an evil. There can be no excessive accumulation of capital so long as human nature has an unfilled want or aspiration. The great need of the world today is capital accumulation. The great danger] of the world today is the lack of capital accumulation."

No one was robbed by the creation of wealth out of what only 20 years ago was worthless rock, open to preëmption by anybody, or by the extraction of nitrogen from the atmosphere. A large part of the present corporate wealth of the United States has originated in such ways. It is of the nature of the intangible wealth that I have previously explained. The part that is physical would be of relatively little value without the application of mind that makes it fruitful. Capital goods that can not earn anything, or can not be made to earn anything, are of no value.

Even as things have naturally developed the corporate wealth of the country is not possessed by only a few people, but rather is it distributed among many. There are many great corporations employing 10,000 men or more, whose number of employees is exceeded by the number of stockholders. Anybody may become a stockholder who is thrifty enough to buy a share of stock. Most of the great corporations urge their employees to become stockholders and try to help them.

As of Jan. 1, 1920 the census reported 1,193,878 farms with land and buildings valued at \$13,772,729,610 which were mortgaged to the amount of \$4,012,711,213, the ratio of debt to value being 29.1 per cent compared with 27.3 per cent in 1910. No attempt was made by the Census Bureau to secure information with regard to mortgaged debt on farms operated by managers or tenants. The average amount of mortgage debt per farm was \$3,361 and the average rate of interest paid was 6.1 per cent. The total number of farms operated by their owners, with the numbers free from mortgage and mortgaged are given in the following table:

Farms operated by their owners, total number.....	3,925,090
Free from mortgage.....	2,313,712
Mortgaged.....	1,611,378

While the number of farms operated by their owners decreased 23,632 or 0.6 per cent, between 1910 and 1920, the number of such farms mortgaged increased 283,939, or 21.4 per cent, and the number free from mortgage decreased 307,571, or 11.7 per cent. The percentage of owned farms mortgaged increased from 33.6 in 1910 to 41.3 in 1920. This increase does not necessarily indicate any lack of prosperity, however, since much of the money is borrowed for profitable investment in improvements or in additional land.

According to a statement issued by the Treasury Department in September, 1921, the deposits in more than 37,000 savings banks in the United States amounted to about six billion dollars. In 1916 the total was about five billion dollars. Orrin C. Lester, acting director of the Savings Division, Treasury Department, furnished me with the following statement of the total of Liberty bonds and Victory notes, by denominations, outstanding May 31, 1921.

<i>Denomination</i>	<i>Number of pieces</i>	<i>Amount</i>
\$ 50	23,068,509	\$ 1,153,425,450
100	20,459,037	2,045,903,700
500	3,518,551	1,759,275,500
1,000	7,448,075	7,448,075,000
5,000	315,664	1,578,320,000
10,000	386,702	3,867,020,000
50,000	5,760	288,000,000
100,000	11,478	1,147,800,000
Bonds and notes deliverable, denominations unavailable.....		3,540,050
Total.....	55,213,776	\$19,291,359,700

The total of the above issues was \$19,291,359,700. On short time notes about three billion dollars was owed. The gross public debt June 30, 1921 was \$23,977,450,552, and the net debt was \$23,427,772,446.

The short time notes, which are expedients for temporary financing are mainly held by the banks, but the Liberty bonds and Victory notes are now held largely by small investors. We can perhaps get some idea of the amount of their holdings by considering the total number of these bonds and notes in denominations of \$500 and less, which aggregated about five billion dollars. The distribution of government bonds is still going on, as is shown by a tabulation in the *Federal Reserve Bulletin* for September, 1921. Government securities owned by, or pledged to, members of the Federal Reserve system, including all national banks, in May, 1920, amounted to \$2,766,011,000. In September, 1921, the total had fallen to \$1,995,448,000.

The holdings of Liberty bonds and Victory notes by small investors together with the savings bank deposits are claims upon the wealth of the country. The corporations were originally large subscribers to both Liberty bonds and Victory notes, but to a large extent they have been compelled to sell their holdings, constrained thereto by shrinkage in their inventories and other adverse conditions, and in general they had to sell for about \$90 that for which they had paid \$100. The Liberty bonds were issued on terms that caused them very quickly to sell in the market at a discount of about 10 per cent.

These data are fragmentary, but they are sufficient to indicate clearly the extensive distribution of wealth among the people of the United States. Not only is

the total wealth of this country greater than that of any other nation, but also is the wealth per person greater, and without any doubt its division among the people is widespread. Increase in the distribution was one of the consequences of the war, for the accumulation of billions of dollars in savings bank deposits and government bonds by small investors can have no other meaning. Deposits in savings banks have increased, while the acquisition of government securities is something new. This shows that not all of the great mass of the workers of the country squandered their earnings during the war period. A great many of them saved, and saved a huge amount. Their actual savings were undoubtedly much greater than would appear from figures stated, for many small investors acquired stocks and bonds of corporations. There is scarcely one of the great public corporations whose lists do not show an increase in the number of stockholders year by year.

Two other things are indicated pretty clearly by these data. First, the cost of living can not by any possibility have increased more than the increase in wages or even as much, for if it had the small investors would not have been able to save anything. Those who complained of the high cost of living were largely the ones who were indulging in high living. The other thing that is indicated is this: The wealth of the country having increased but slightly and the savings of small investors having increased very largely, their savings could come from nowhere but out of the property previously owned unconditionally by other people. Contrary to the popular belief, the fact is that the business interests of the country paid mainly for the

war. The farmers improved their situation. The small investors, who comprise farmers, small merchants and the more thrifty among the wage-earners improved their position. The real financial tragedy was in Wall Street. This view will be confirmed by examination of what happened with respect to the national income.

CHAPTER IX

THE NATIONAL INCOME

Until recently there has been nothing but random studies of the amount of the national income, which generally have dealt only with a single year. Fortunately this gap in economic knowledge has lately been filled by the work of the National Bureau of Economic Research, which has compiled statistics for each year of the period 1909–1919. I have added my own estimates for 1920–1922.

The National Bureau made two independent computations, one based on production, the other on incomes received. The two sets of figures agreed closely. Either one might have been accepted as a good approximation to the truth. However, by analysis and comparison of the two sets of figures a third set was deduced as being the most probable. Thus we are now advantaged by data on this subject that are probably correct within 10 per cent plus or minus.

Combining the data of the National Bureau for gross income and estimates for capital accumulation by Doctor Friday and by myself, we may determine by difference the amount of the national living expenses. I have introduced a figure for 1914 with no other reason than that the estimated expenses in the years immediately preceding and following make it look probable. By “living expenses” is meant that exactly. The cost of the war came out of what is headed “savings,”

meaning capital accumulation, but after 1916 the surplus that had previously been saved ceased to be capital accumulation except in part, and was mainly diverted to warfare and collateral expenses.

NATIONAL INCOME AND EXPENSES
(In millions of dollars)

<i>Year</i>	<i>Total income</i>	<i>Savings</i>	<i>Expenses</i>
1909	\$28,800		
1910	31,400		
1911	31,200		
1912	33,000	\$5,000	\$28,000
1913	34,400	6,500	27,900
1914	33,200	5,500	27,700
1915	36,000	9,000	27,000
1916	45,400	14,500	30,900
1917	53,900	18,000	35,900
1918	61,000	22,000	39,000
1919	66,000	15,000	51,000
1920	72,000	11,500	60,500
1921	55,000	4,000	51,000
1922	59,000	5,000	54,000

The estimates for savings for 1912, 1914, 1921 and 1922 are by myself. For the other years they are by Doctor Friday. As I have previously noted, Friday's estimates of savings in 1916-1920 are probably somewhat too high, wherefore expenses in those years may have been higher than computed above.

The figures for 1913-1920 illuminate certain subjects of dispute in a very clear way. I have shown elsewhere that physical production increased relatively little during this period. It follows therefrom that the enormous increase in gross income must be attributed mainly to the rise in prices. In 1918 the total income was 1.77 times that of 1913, but living expenses were only 1.4 times as much. In 1919 total income had

increased to 1.92 and expenses to 1.82 times the rates of 1913.

It would be unsafe to attempt to draw very fine deductions from these rough data, but they indicate that the validity of the index numbers commonly used may be doubtful¹ and furthermore that the cost of living did not increase so much as has been supposed. In considering that question it may be borne in mind that population increased steadily during this period. On the other hand in 1917-1918 men—to a maximum of about 5,000,000—were withdrawn from ordinary life and were supported during their military service out of the surplus of the nation's earnings. This, together with the response of the people to the exhortations for economy in the use of food, fuel, and all goods, explains why expenses increased relatively little from 1917 to 1918. In 1919 there was an enormous jump. No longer were there any restrictions and the people spent recklessly. At the same time Europe was bidding our goods away from us.

In the fiscal year ended June 30, 1914, out of a total production of 1.09 billion tons of raw material the United States exported 53,180,558 tons of raw and manufactured products. In the year ended June 30, 1920, the exports were 70,591,657 tons out of a total of 1,165,000,000. In the year ended June 30, 1921, they were 87,009,809 tons out of a total of 1,234,000,000² tons.

¹ These data strengthen the doubts respecting the common index numbers that were expressed in Chapter II.

² The export statistics are from a report by the Department of Commerce, Sept. 19, 1921. They are for fiscal years. The production figures given in correspondence therewith are derived from those in Chapter II, taking the mean of the two calendar years embraced in the fiscal year, except that in the last case the figure for the calendar year 1920 is used necessarily.

Considering these simple facts, plus the increase in the population of the United States, the rise in prices during the period is adequately explained without looking for any other reason. Indeed, the results that are on record would have been impossible had not the nature of our production been changed. In 1913 we might not have been able to let foreign countries take 8 per cent of our production, but in 1920, with curtailment of our building construction and the tonnage of raw materials especially pertaining to it and coincidentally increased tonnages of other things we could permit it, but naturally got high prices for what we sold.

Approaching the subject of the division of the income, it will be helpful to take up first the position of the corporations. The business of production is now conducted in all but entirety under the corporate form. Transportation is wholly organized in that way. So is banking. Even in merchandizing—in the final distribution of goods—corporate organization has attained large proportions. Corporate statistics constitute therefore a very good index of the business position.

The prevalent idea has been, and still is, that the corporations of the United States waxed greatly during the war. They are regarded as comprising the quintessence of profiteering. Taxation has been directed especially toward them. Let us therefore try to ascertain what are the facts. Fortunately there are some statistics that unveil them in part, but there is a part which remains shrouded in uncertainty and about which there is bound to be misunderstanding and controversy.

With regard to the dividends actually paid to stock-

holders there are data in the form of estimates by Professor Friday and Doctor Knauth and the reports of the Bureau of Internal Revenue showing dividends actually received, according to the income tax returns. These figures, together with those for the national income are tabulated as follows:

—————(In thousands of dollars)—————

Year	Total income N. B. E. R.	Dividends received		
		—Dividends paid—		Bureau Internal
		Friday	Knauth	Revenue
1916	\$45,000,000	\$3,783,900	\$3,389,000	\$2,136,469
1917	53,900,000	4,651,900	3,995,000	2,848,842
1918	61,000,000	4,250,000	2,568,000	2,468,749
1919	66,000,000	3,900,000	2,524,000	2,453,775

There are obvious discrepancies in these figures. There is no doubt that in 1916 and 1917 people did not report incomes as carefully as in 1918 and 1919. We must allow for a considerable amount of understatement of income in those years, especially in the two to five thousand dollar class of income receivers. On the other hand Doctor Knauth thinks that he may be too high for those years. In any case, even granting that the Bureau of Internal Revenue's figures are too low for 1916–1917 there is no doubt that Friday's figures are too high in every case. Perhaps a mean between Knauth's and the Revenue Bureau's figures may be nearly correct.

In making comparisons, the dividends of each year probably should be set against the income of the previous year, for no increase in the rate of distribution would be made until after the income had been realized. Thus, 1916 was notoriously the greatest year of corporate profits. The great increase in dividend distribution occurred naturally in 1917. But the surprising

revelation of these figures is that the increase in dividends was so little, having been far out of proportion to the increase in either the gross or net national income. This leads directly to the questions—Did the corporations accumulate great surpluses and if so what did they do with them? The matter of corporate surpluses is controversial and I must therefore go into it to some length.

It is indisputable, of course, that the accumulations as corporate surplus in any year are a part of the gross income of that year. The controversial questions are: (1) Is such surplus net income; (2) if it be net income is it an addition to the wealth of the country if it be retained by the corporations; and (3) how should it be figured in estimates of the division of income.

Before going any further, let us summarize the forms in which corporate surplus commonly exists. These are (a) cash, (b) negotiable securities, (c) outstanding accounts, (d) inventoried goods, and (e) additions to plant. Of these, (a) and (b) may be classed as liquid, (c) and (d) are viscous, so to speak, and (e) is solid.

The purpose of accumulating corporate surplus is (a) to insure regularity of dividends; and (b) to increase dividends by increasing the earning power of the corporation.

The ultimate purpose of a commercial corporation is the payment of dividends to its stockholders. If more money is earned in a year than is paid out, the stockholders do not derive benefit from the surplus until it is paid out. It is true that an individual stockholder, or the whole body of stockholders, may dispose of their holdings at an appreciation in price, but if they do so they are simply anticipating the dividends to come.

The purchasers are buying those dividends. Similarly, if the company puts its surplus into plant and eventually capitalizes it and distributes a stock dividend, the benefit to the stockholders, in the last analysis, is the dividends that they are going to get from the additional stock.

However, it may be that corporate surplus is incapable of disposition in either of the above ways, for it may be that it is only temporary or fictitious. On a rising market surplus accumulates through the increase in inventory of goods on hand. On a falling market it shrinks by virtue of opposite factors. Through the gamut of such ups and downs a surplus may be but temporary. Indeed, it may be nothing more than a bookkeeping affair.

The question with respect to fictitious surplus is more complicated. It has been a common and chronic failing among corporations to write off enough for amortization of their plants. In other words, net earnings are often figured fictitiously large by omitting to make a debit for the consumption of capital accumulated in the past. This has brought many a business to disaster. Among more conservative corporations it has been a practice to pay in dividends only a portion of the estimated net earnings and put the remainder into so-called improvement of the property, frequently crediting this to capital account, *i.e.*, earned surplus. Often this merely replaces plant that has worn out or has become obsolete, and really there is no addition to capital account, except on the books. Surplus thus figured is of course fictitious.

The incidence of the income tax laws since 1916 has caused American corporations to be more particular

about writing off for depreciation and depletion, but such improved accounting has probably fallen far short of making the necessary economic adjustments, and the tax gatherers would not permit them even if the corporations were minded to attempt it. My thought refers to conditions when entire industries, or important parts of them, have to be thrown away as being of no further use.

It will be agreed that a corporation accomplishes nothing by earning a surplus and investing it in new plant for which there is no use. The object of any industrial undertaking is to make money. If it can not make money, either currently or prospectively, the plant has nothing but salvage value, which usually is very small.

Let attention be directed to some broad examples of this nature, which are quite independent of recent wartime conditions. A metallurgical company possesses a group of smelteries dependent for their ore supply upon the mines of a certain region. While those mines furnished adequate ore the smelteries were valuable plant. Upon failure of the mines the smelteries ceased to have any value although as plants they had been maintained in a high state of efficiency. This was an obsolescence arising from change in geographical conditions.

During the last 10 years an immense amount of capital has been invested in plants for the building of automobiles. Concurrently with the rise of the automobile the use of the carriage and wagon has waned and a huge amount of plant previously employed for carriage and wagon building has become useless and has had to be written off from the capital assets of

the country. But automobile building itself has been overdone, and much of the new capital invested in it will be lost. At the end of 1920 the country was equipped to build 2,750,000 automobiles per annum. The present capacity is perhaps 3,000,000. Conservative estimates of the probable market range from 1,500,000 per annum down to 1,000,000. As between those figures there need be no serious argument, for in either case it is obvious that there is a great surplus of manufacturing capacity which will cease to have value for the purpose for which it was provided.

The war resulted in many developments of this nature. A classic example may be cited from the zinc industry. In 1914 we had plant for making about 400,000 tons of spelter per annum, which was ample for meeting our consumptive demand, including peak loads. In 1915 Europe bid the price of zinc up to fantastic prices, and in two years we increased our spelter producing capacity to 800,000 tons. Zinc producing companies thought they were making enormous profits. Their books and their statements to the Bureau of Internal Revenue showed that they were. But really the zinc industry as a whole, was not doing any such thing. In fact, Europe in the guise of high prices for spelter and large apparent profits to the producers was furnishing them with the capital to build new plant for temporary use with the clear vision on the part of everybody that much, if not all of it, would soon have to be thrown away. Experience confirmed this expectation, for at the end of the war the United States was estimated to have 400,000 tons of good zinc smelting plant for which there would be no further use. Individual corporations are in the position

of having earned monumental surpluses in 1915 and 1916, putting them wholly into additional plant, and not having paid any dividend or now being able to.

This history of the zinc industry reflects what is perhaps an exaggerated manifestation, but nevertheless some of the same elements are to be found in copper production, automobile manufacturing, ship-building and probably in many industries. From early in 1920 until late in 1921 the stock-market was trying to express the writing off that must be done for overbuilding, that absorbed many surpluses, which no longer will be of any use.

It is undeniable that many great enterprises have been built up out of earnings and have annually created surplus accounts that have stood for something durable. Examples of this will be found in the steel industry and in the meat-packing industry. It is to be conjectured, however, that this happened more before the war than during it.

The conclusions to be drawn from these considerations are these:

1. Corporate surpluses are accumulated out of gross income.

2. They do not constitute net income if (a) they are accumulated at the expense of capital previously earned or invested; or if (b) they accrue for the provision of plant of only temporary usefulness.

3. Earned surpluses of one year should be balanced against shrinkage of inventories and writing-off of plant in another year.

It follows from this that after an economic determination of gross income has been made, corporate surpluses should be deducted and carried as a suspense account.

The remainder is available for distribution as interest, expenses, and dividends. If the surplus carried as a suspense account proves to be permanent it will appear eventually as an increment of the inventory of the wealth of the country and the earnings therefrom will be distributed as expense and dividends. If the surplus becomes a deficit there will be no such distribution; the country will have become poorer in its inventory.

No correct analysis of what happened to the corporations between 1913 and 1921 could be made without studies of their individual affairs and valuations of their properties. However, some general ideas may be formed that will not be far out of the way. The *Wall Street Journal* of July 6, 1921, tabulated data of 140 industrial companies over a period of six years. This list comprises the big industrial corporations of the United States with but few exceptions. The illuminating feature of this table is the summary of earnings retained each year after payment of dividends, or "deficits if dividends exceeded earnings." These data are as follows:

<i>Year</i>	<i>Surpluses</i>	<i>Deficits</i>	<i>Difference</i>
1915	\$332,128,141	\$8,951,952	\$323,176,189
1916	854,606,462	nil	854,606,462
1917	649,672,377	5,770,247	643,902,130
1918	421,385,944	6,846,454	414,539,490
1919	432,955,169	35,637,697	397,317,472
1920	437,151,317	123,845,306	313,306,011

At the end of 1914 these companies had "working capital" to the amount of \$1,962,351,675; and at the end of 1920 they had \$4,479,863,627; an increase of \$2,517,511,952 according to their own figuring. "Working capital" includes "cash and investment securities,

not of subsidiaries," and "inventory." The position of inventories was as follows:

Dec. 31, 1914.....	\$1,234,061,175
Dec. 31, 1918.....	3,044,740,887
Dec. 31, 1919.....	3,108,689,911
Dec. 31, 1920.....	3,584,309,169

In determining net earnings some of the corporations appear to have been conservative in writing off plant; others not so. In general I should say, however, that even where the writing off has been conservative it has been confined to what is really the use of plant, or better the consumption of plant, and was to only a slight extent, if any, for the discarding of surplus plant. The part of the working capital that is classed as investment securities is moreover open to more or less doubt. It comprises to some extent Liberty bonds carried at cost (par) but actually shrunk to 90 per cent or less, if regarded as a liquid asset, while other investment securities may have shrunk even more. However, even from these few data some important deductions may be made pretty surely.

1. The year 1916 was that of the greatest surplus. No one of these 140 companies distributed in dividends any more than it earned in the year. With the succeeding years deficits increased progressively. This reflects the common corporation policy of retaining a surplus as an equalizer and explains the maintenance of dividends in 1920 and 1921 after net earnings had ceased.

2. In 1921 there was a steadily increasing cessation of dividends, showing that the surpluses retained as equalizers were proving insufficient. This was because the larger part of the surpluses was in the inventory of goods, which had shrunk enormously in value. In

other words, the surpluses supposedly earned and so carried on the books, were really not surpluses at all. Or if they may be properly viewed as such in an economic enumeration of annual national earnings, offsetting entries should be made in other years.

3. The engineer is commonly suspicious as to whether reported net earnings are what corporation managers think they are, being doubtful whether expenses include enough for the consumption of plant (depreciation, etc.). He is even more doubtful about adequateness of allowances for obsolescence. Professor Friday in "Profits, Wages and Prices," expresses the opinion that corporations commonly underrate their earnings. The consensus of engineering opinion is, I think, the other way around.

In summary, the analysis of evidence in this chapter is conclusive in showing that the dividends paid by corporations of the United States increased but relatively little during the war period and in no wise in proportion to the increase in national gross and net earnings, or in proportion to the indices of commodity prices, wages for labor and cost of living. Furthermore, the net earnings of the corporations, which were apparently greatly in excess of the dividends distributed were either illusory or were subsequently lost by (a) absorption in maintenance of property (b) investment in additional plant that has become useless (c) investment in securities that have diminished in value and (d) shrinkage in inventories. In 1916 it was a precept in the teaching of investors that the corporations by their conservative policy in distributing dividends were placing themselves in positions insuring their dividends for a decade at the least.

Market prices reflected that thought. At the height of the boom in industrial stocks the quotations of many of them were in no degree commensurate with estimated current earnings and it was believed that they were conservative just because of this fortification of reserves. Yet even with 1920 that theory began to be exploded, and exactly for the reason that the surpluses were economically fictitious, as has been shown by my analysis in this chapter. Any other deduction would be out of harmony with the history and present situation of the securities market. What has proved to be the misconception about this is a part of the tragedy of Wall Street.

With a gross national income of 33 to 34 billion dollars in 1912-1914 we used to spend about 28 billion dollars for living expenses and save about five billion, out of which we provided the new houses, railways and other essential things needed by the people. Roughly, about 10 per cent of our expenses were for government—Federal, State and municipal. As a people we had gone in for automobiling and theatrical amusements to what then seemed to be an alarming extent, but now looks ridiculously moderate. We spent rather a large sum annually on alcoholic drink. These were perhaps our great extravagances.

In 1919 the national income had risen to 66 billion dollars. This was not because of increased physical production, but rather was it attributable to inflation in prices. The 1919 production in dollars was a little short of twice that of 1913. The index numbers of commodity prices had about doubled. The 1919 production in tons was a little less than what it was in 1913. In terms of 1913 dollars it was a little more.

We were selling to Europe a large proportion of our produce, at more or less inconvenience to ourselves. We should not, perhaps, undertake to draw excessively fine points from these data, but the main thing is clearly established, *viz.*, that our fancied prosperity was a consequence of inflation and not of any material progress.

Our surplus earnings, also inflated during the war period and subsequently, went to pay for the cost of the war. When the war expenses declined and we had again a chance to save we did not begin to do so but increased our extravagance in living. In 1919 the nation's living expenses were about 51 billion dollars. Out of this we were paying expense of national government, about 3.5 billion dollars;¹ expense of state and municipal governments, about 3.5 billion dollars. For admissions to theaters we were paying about \$750,000,000; for new automobiles about the same amount; for candy and chewing gum about \$250,000,000; for non-alcoholic beverages about \$575,000,000; for jewelry, watches, etc., about \$250,000,000; for furs about \$150,000,000. These figures are computed from the internal revenue collections for 1919-1920, assuming that the tax averaged 10 per cent in each case.²

What was the expense of operating automobiles for purposes of pleasure or semi-pleasure? Nobody can do more than conjecture and get a rough idea. The

¹ The total national budget is about 4.5 billion dollars, whereof about one billion dollars is for the interest on the debt. I exclude this, for it is taken from some people and paid to others.

² The expenditure for new automobiles is computed from the income tax returns in the manner stated. The actual expenditure, according to the reports of the automobile manufacturers, is larger. I make no attempt to explain the discrepancy, which anyhow is rather immaterial in this connection.

average expense of direct operation, *i.e.*, gasoline, oil, tires, sundry supplies and repairs, is about 10 cts. per mile. The average car is supposed to run about 5,000 miles per annum. This gives an expense of \$500 per car, exclusive of garaging and many incidentals. Shall we put the number of pleasure cars at 4,000,000, allowing for work and utility cars? We should have then an annual expense of two billion dollars, for direct operation. Allowing for other expenses and for depreciation in the cars themselves, I have no doubt that automobiling as a luxury was costing the American people at the rate of upward of three billion dollars per annum in 1919.¹

F. R. Pleasonton estimates the national expense for automobiling at a very much larger figure. On the basis of keeping 9,211,295 vehicles in operation he computes the following annual expense:

Depreciation.....	\$1,900,000,000
Interest.....	285,000,000
Tires.....	1,131,000,000
Gasoline.....	1,237,500,000
Oil.....	123,750,000
Roads.....	720,000,000
Garaging (storage only).....	756,000,000
Maintenance and supplies.....	950,000,000
Insurance.....	329,000,000
Drivers' wages.....	735,600,000
Total.....	\$8,167,850,000

At the rate of 45 cts. per hour for labor and 2500 working hours per year, Mr. Pleasonton reckons that this annual expense is equivalent to the preëmption of 7,250,000 workers on full time. I am of the opinion

¹ Alfred Reeves of the National Automobile Chamber of Commerce claims that 60 per cent of the automobile mileage is for business purposes.

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Depreciation.....	\$1,940,000,000
Interest.....	285,000,000
Tires.....	1,121,000,000
Gasoline.....	1,227,000,000
Oil.....	122,750,000
Roads.....	720,000,000
Garaging (storage only).....	750,000,000
Maintenance and supplies.....	950,000,000
Insurance.....	225,000,000
Drivers' wages.....	750,000,000
Total.....	\$12,560,750,000

At the rate of 45 cts. per hour for labor and 25% working hours per year, Mr. Pleasonton reckons that this annual expense is equivalent to the production of 7,250,000 workers on full time. I was of the opinion

¹ Alfred Barrows of the National Automobile Chamber of Commerce claims that 60 per cent of the automobile mileage is for pleasure purposes.

CHAPTER X

THE DIVISION OF INCOME

In the previous chapter we have examined the amount of the national income and the purpose to which it is applied as a whole, *i.e.*, the amount that is used for the national living expense and the surplus that has remained available for saving and has generally been saved until our entry into the war preempted it for national defense, with the result that during that period we did not, and could not, save anything, which is in fact confirmed by the pre-war and post-war inventories of the national wealth.

What now has been the division of income between wage earners and the owners and managers of property? The National Bureau of Economic Research has presented the accompanying table showing the division

<i>Year</i>	<i>—Millions of dollars—</i>		<i>——Per cent——</i>	
	<i>Wages and salaries</i>	<i>Management and property</i>	<i>Wages and salaries</i>	<i>Management and property</i>
1909	\$ 6,481	\$2,950	68.7	31.3
1910	7,156	3,250	68.8	31.2
1911	7,287	2,791	72.3	27.7
1912	7,993	3,169	71.6	28.4
1913	8,651	3,359	72.0	28.0
1914	7,947	2,816	73.8	26.2
1915	8,722	3,470	71.5	28.5
1916	11,630	5,810	66.7	33.3
1917	14,375	6,502	68.9	31.1
1918	17,472	5,124	77.3	22.7
1919	.....	.....	80.0*	20.0*

*My own estimates.

of combined net value product of mines, factories, and land transportation between earnings of employees and returns for management and the use of property in the period 1909–1918. “Wages and salaries” includes all pensions, compensation for accidents, and the like. “Management and property” includes rentals, royalties, interest, and dividends. “Net value product” does not include raw materials, supplies, and services received from other industries. In another table the National Bureau of Economic Research presents “A conjectural estimate of the percentage of the national income received by the highest 5 per cent of income receivers in the period 1913–1919,” as follows:

Year	INCLUDING FARMERS		
	<i>Income of the highest 5 per cent of income receivers (billion dollars)</i>	<i>Total individual income (excluding corporate surplus) (billion dollars)</i>	<i>Per cent of total income received by highest 5 per cent of income receivers</i>
1913	\$10.6	\$32.3	33
1914	10.3	32.0	32
1915	11.1	34.3	32
1916	14.3	41.6	34
1917	14.7	50.5	29
1918	15.4	60.0	26
1919	15.5	64.7	24
	EXCLUDING FARMERS		
1913	\$ 9.9	\$28.1	35
1914	9.6	27.8	34
1915	10.4	29.6	35
1916	12.8	35.8	36
1917	13.6	41.7	32
1918	13.9	49.5	28
1919	14.4	53.8	27

Some further idea of the division of income may be obtained by a combination of the data of the National Bureau of Economic Research with those for personal incomes reported by the Bureau of Internal Revenue.

The income of corporations is excluded, for except insofar as it is retained as surplus, it is bound to reappear in dividends and interest paid to persons. These combined figures are given in the accompanying table. Under "salaries" are included wages, commissions, fees for professional service, etc. Under "business" are included the earnings from trade, commerce and farming, and profits from the sale of real estate, stocks and bonds, and other property.

Year	1916	1917	1918	1919
Salaries.....	\$ 1,478,346,372	\$ 3,648,437,902	\$ 8,267,391,550	\$10,755,692,651
Business.....	3,010,404,924	3,958,670,028	4,630,455,322	6,708,344,984
Rents.....	643,802,657	684,343,399	975,679,666	1,019,094,265
Interest.....	1,080,879,405	936,715,456	1,403,485,691	1,500,779,100
Dividends.....	2,136,468,625	2,848,842,499	2,468,749,244	2,453,774,825
Total.....	8,349,901,983	12,007,009,284	17,745,761,473	22,437,685,825
Deductions.....	2,051,324,363	885,763,077	1,821,122,118	2,578,194,377
Net income.....	6,298,577,620	11,191,246,207	15,924,639,355	19,859,491,448
Basis.....	+3,000	+2,000	+1,000	+1,000
Number of returns....	437,036	1,832,132	4,425,114	5,332,700
+3,000.....	6,298,577,620	9,126,268,879	10,065,459,945	13,223,091,932
Number of returns....	437,036	993,425	1,411,298	1,838,147
National income.....	45,400,000,000	53,900,000,000	61,000,000,000	66,000,000,000
Per cent.....	13.9	17.0	16.5	20.0

The figures in the accompanying table are not exactly comparable, for in 1916 only incomes of \$3,000 and upward were reported. In 1917 the line was put at \$2,000 and in 1918 at \$1,000. The lowering of the line exhibits itself especially in the reported receipts for salaries and wages; to a smaller extent in the earnings from business (non-corporate). Rents, interest and dividends increased proportionately less. In other words, the great advance in income from 1915 to 1920 by the classes reporting for taxation purposes was for personal services rather than for property. In the fourth line from the last is given a computation of incomes of \$3,000 and over in each year, which is more truly comparative. It appears from this and

the subsequent lines that the percentage of such income with reference to the total rose from 13.9 in 1916 to 20 in 1919, while the number of persons in this class rose from 437,036, to 1,838,147. In other words there was a great transition into the plus \$3,000 class by virtue of high wages, increased salaries and business and farming profits of persons who were not in that class in 1916. This shows the same unbalancing that appears in the computations of the National Bureau of Economic Research.

NATIONAL INCOME IN 1916

National income.....	\$45,400,000,000	N. B. E. R.
Net produce of agriculture.....	7,205,000,000	N. B. E. R.
<hr/>		
Remainder.....	\$38,195,000,000	
Corporate surplus.....	4,325,004,573	
<hr/>		
Remainder.....	\$33,869,995,427	
Incomes plus \$3,000.....	6,298,577,620	B. I. R.
<hr/>		
Remainder.....	\$27,571,417,807	
Incomes \$2,000 to 3,000.....	1,875,000,000	
<hr/>		
Incomes minus \$2,000.....	\$25,696,417,807	

An analysis of the data for 1916 affords a more perfect illumination of conditions. In that year the number of farmers who made income tax returns was negligible. Consequently that entire class may be segregated. Next, a segregation may be made of corporate surplus. Whatever be the disposition of that item it came out of the total national income. Probably a part of it was no true surplus and therefore should not be deducted from the national income;¹ probably another part of it was destined to shrink

¹ In a previous study, *Annalist*, Sept. 20, 1920, I estimated that only \$2,162,500,000 was true surplus in 1916.

in inventories and be written off in other capital losses; only a part of it would ultimately be distributed among stockholders as dividends. This clarifies the real position of corporate surplus. Out of it stockholders may derive a maintenance of dividends in lean years when the national produce is not sufficiently large to yield wages, salaries and remuneration for personal service at the previous rate. It is precisely this situation that has developed in 1921. The data for 1916 are incomplete with respect to the income of people receiving between \$2,000 and \$3,000. In 1917 there were 838,707 persons, receiving \$2,064,977,328, in that class. If I estimate 750,000 receiving \$1,875,000,000, in 1916, I shall be probably not far out of the way. Making this last deduction there remained \$25,696,417,807 for incomes of less than \$2,000 and that was essentially the share of the non-agricultural wage earners. It was about 75 per cent of the total national income less the net produce of agriculture and gross corporate surplus. My computation is a little too high in percentage owing to inclusion in the final remainder of dividends, interest, etc. received by persons with incomes of less than \$2,000. On the other hand I think it is probably too low on account of the matter of corporate surplus.

The two sets of figures, *viz.*, my own and those of the National Bureau of Economic Research check approximately. They should not be in anything more than approximate agreement, for they represent different things, *i.e.* the Bureau's estimates are for the "highest 5 per cent of income receivers," while my own are specifically for the income-tax payers, 437,000 in number, who received incomes in excess of

\$3,000 in 1916. This is a sharper classification of the capitalistic and professional class than is drawn by the Bureau. The Bureau estimates that the "highest 5 per cent" in 1916 received 36 per cent of the total income, farmers being excluded, while I show that the "plus \$3,000" class received only 25 per cent.

The estimates of the National Bureau of Economic Research, covering a series of years, indicate a very important thing. Of the net value product of mines, factories and land transportation, the wage earners in the period 1909-1915 received from 68.7 to 73.8 per cent. In 1916 their proportion fell to 66.7 per cent. The explanation is simple. That was the year of rapidly rising prices, and the value of the goods produced outstripped the advances in wages. Beginning with 1917 the share gained by labor became larger. In 1918 it rose to the previously unequalled figure of 77.3 per cent, and in 1919 it was probably about 80 per cent. The estimates of total income show the same thing. The class of the "highest 5 per cent," exclusive of farmers, got 34 to 36 per cent in the period 1913-1916, following which their proportionate share diminished year by year, having been only 27 per cent in 1919.

These data are quite in harmony with all the rest, *e.g.*, the changes in the position of capital goods before and after the war, the diminished dividend payments, the reduced rate of house building, the impairment of the conditions of the railways, public utilities, etc. The share of labor is normally determined in the long run by the principle that labor is the residual claimant upon the produce of industry, taking all that remains after the deductions of the shares of the landlord, the

capitalist, the entrepreneur, and the state; that even if those deductions were not made labor would not get any more; that such inequalities in distribution that exist are not between capital and labor, but are among classes of labor itself.

On the lowest grades of land there is no rent. The cost of producing from them so much as must be produced to supply the needs of the people determines the price of agricultural produce. The rent of better lands is the excess of their produce after the cost of cultivating the no-rent lands has been paid. This rent does not affect the price of agricultural produce and does not come out of the remuneration of the agricultural laborer. The laborer can not get it, or any part of it, by any economic means. It must go to the landlord unless it be confiscated by the state, or ravished away by violence, and in either of those events it will soon cease and no longer accrue for anybody.

The remuneration for the use of capital must be high enough to induce those who have produced wealth to save it, instead of consuming it. Manifestly what is paid as interest for the use of capital is no loss to labor, for it makes more produce out of which labor benefits. Indeed, the higher the rate of interest the more is the benefit of labor. The worst thing that could happen to labor would be such a curtailment of the rate of interest, either from economic or arbitrary causes, as would diminish the incentive of people to save and induce them rather to gratify personal appetites and tastes as consumers.

Profits economically partake of the nature of rents. Just as there is a class of no-rent lands so is there a class of no-profit employers, the need for whose produce

determines the market price. From the point of no-profit production, profits range upward through the degrees of moderate profits, liberal profits, grand profits, monumental profits, but these consist wholly of wealth created by the entrepreneurs themselves and no economic means would carry any portion of them permanently to wages. To be sure, they may be taken by the state as taxes, and by the state paid out in extravagant wages, but this destroys the economic balance and produces conditions whereof the result is that nobody makes any profit, industry languishes and labor suffers.

This is just what has been happening since 1916. The State has been taking large shares out of the produce of industry and by its competition for labor has contributed toward the raising of wages generally, with the result that the proportion of the total accruing to labor has increased, but on the other hand the very sources of production have been drying up, wherefore many men in 1920-1921 were thrown out of work altogether. It may be conceived that readjustment of economic conditions in the United States will not be completed until the division of the produce of industry between capital and labor has swung back to the prewar figure. Labor itself will then find that it is better off with 70 per cent of a large produce than with 80 per cent of a small one; or with 99.9 per cent of one that is infinitesimal.

There is a prevalent fallacy that the national income is a definite thing, out of which the rich and strong first help themselves and take the lion's share. Among the labor leaders the unfortunate idea that increase in the number of men on a job and inefficiency are beneficial

to labor as a whole is merely a variation of this fallacy. The truth is overlooked that the produce of industry is the result of work and that people can get only what they earn. In other words labor pays its own wages.

In point of fact labor gets more than it earns, and that fact tends to develop in it certain parasitic qualities. The two extra men on a locomotive that has room for only three are merely parasites. Rents, interest, profits and taxes being deducted from the produce of industry all the rest goes to the laborers. "So far as, by their energy in work, their economy in the use of materials, or their care in dealing with the finished product, the value of that product is increased," says General Walker, "that increase goes to them by purely natural laws, provided only competition be full and free. Every invention in mechanics, every discovery in the chemical art, inures directly and immediately to their benefit, except so far as a limited monopoly may be created by law for the encouragement of invention and discovery."

This is an expression of a great economic truth in the abstract, but we are able to show and to say a good deal more than that, to wit, that during the last hundred years of great industrial development the major part of the benefit has accrued to labor. It was the theory of Karl Marx, from whose teachings are derived so many of the fallacies of the present time, that labor, in its narrowest sense, produces everything, and therefore that labor should have all that it produces. In fact it gets all that it produces and besides that a good deal of what other people produce. If labor were left to itself this would be a pauper world, like Russia now. So long as the world was dependent upon mere man-

power there was no very great advance in the wealth of nations beyond what was due to increase in population. There is no good reason to believe that an Englishman in the reign of George V could carry any more weight per hour or for any more hours, or could exhibit any other superiority of physical power, than an Englishman in the time of William the Conqueror. The great increase in production has happened during the last century and a quarter and has not been because men have grown any stronger; but because mind has taught labor how to become more effective and has provided it with machines and with organization. Three men now operate a locomotive that does the work of 10,000 men. It is the inventive and organizing minds that have put machines at the service of mankind. It is the inventive and organizing minds that have produced the great increase in wealth and to the possessors of those minds might reasonably have occurred all that they earned, but the economic principle that labor is the residual claimant prevented any such result, even if it were desired. The income of England in 1801 was about £180,000,000. The income of the United Kingdom at the same rate, but allowing for the increase in population, in 1907, would have been about £900,000,000. Actually it was about 1.95 billion pounds, excluding the revenue from foreign investments. In the words of Mallock, "the mind of the larger employers was the primary producer of an income of some £1,050,600,000 added to an income that would otherwise have been £900,000,000 only." Of this increment the representatives of mind got only about £250,000,000 for themselves, including both profits and the interest on industrial capital.

It has been shown that labor in the United States gets normally about 70 to 75 per cent of the produce of industry. Of the remainder a portion is the share of property, but a large part is the earnings of men engaged in business, trade and commerce, together with those of the salaried and professional men. All of these men earn what they get. They do not take it from any one else. If they did not earn it, it would not exist. Labor could hope to get the remainder only if it acquired possession of all the capital of the country and had all the talented persons working for it as slaves with the same efficiency as they exhibit in working for themselves, which is a preposterous idea. This illuminates the great mistake that was made in Russia. The Bolsheviks seized the property of the country but they lost the brains and did not even know what they were losing. Professor John R. Commons in a recent paper wrote that "experience shows that neither politics nor labor as a class can manage industry nor assume the responsibilities of management. Industry can not be efficiently managed on the basis of popular election of the boss. Efficient managers are self-made in the struggle for profits." Lenin has appreciated this in his apologia. In his speech at the Third All-Russian Congress of Transport Workers he outlined the only dream remaining to socialism and communism as follows:

"Let us imagine that by some miracle the whole bourgeois class would undergo internal transformation and that the former owners of all enterprises in agriculture, industry, trade, and transportation would begin to work not for their own pockets, but for the State as a whole. This would mean, for example,

that all such owners would give up their profits and their claim to surplus value and would be satisfied to get wages for their work. It is clear that under such circumstances, the whole economic apparatus of the bourgeoisie would be suitable for our purposes and that it would not be necessary to demolish any part of it. All the workmen, employees, managers, directors, owners could remain where they were. The whole apparatus would simply cease working for individual profits. Each person, taking part in the work, would satisfy his needs out of that unified fund which would have been created out of the products of the whole apparatus."

Such a thing would be a miracle indeed. In this has been the great mistake of socialism. The people *en masse* do not know how to manage. The intelligentsia will work only under self incentive. That is merely human nature.

That some individuals accumulate colossal fortunes, that some corporations realize monumental earnings, is no ground for cavil or for making them the special targets for taxation. That low-cost producers make large profits under prices which permit high-cost concerns barely to operate is surely not an iniquity. If, as is usually the case, their low costs are due to conditions which they have created, they are not responsible for the fact that prices are high; they have done their part toward lowering them and they show the way to the others. If all producers would do as well, prices would be lower. It is the low-cost producer who is rendering the best service to the public. He is the leader in industry. Any advantages that he may gain are but temporary, for after he has set the example

the entire volume of production may be placed on the same basis and the public gets the benefit. There would probably be no automobiles running today if the Standard Oil Co. had not organized and led the way in the petroleum industry. Moreover, the public can better afford to pay a given price to a low-cost producer than to one who makes little or no profit. The low-cost producer by doing his work with a less expenditure of labor, releases labor for other work, a consideration quite as important as price. His service to the public is incomparably greater than that of the producer who, selling his goods at the same price, makes no profit.

The theory of taxation that has, heretofore, prevailed under the guise of excess profits has been to mulct the low-cost producer. That is feasible, as has been proved, but it is short-sighted. It deprives the high-cost producers of incentive to improve themselves and dooms the public to higher prices for their commodities than they would obtain in the natural course of events.

There was to be sure a good deal of disagreeable profiteering during the war and subsequently, although in the aggregate it was probably in no wise so large as it is pictured. This happened to some people in spite of themselves, *e.g.*, to those who chanced to own stocks of goods that rose sharply in value, and to those who owned houses, which owing to scarcity commanded increased rents. The exorbitant demands of some of these landlords became a scandal, but the correction of the evil and the confusion of this breed of profiteer rested with labor itself, which had only to make it possible for people to build more houses and bring rents tumbling down by augmentation of the supply.

CHAPTER XI

THE RESULTS OF SOCIALISM AND COMMUNISM

No sensible person would try to maintain that the pre-war organization of society was perfect. Undeniably there were evils, both sociological and economic. The organization was one, however, that had been developed by evolution; it was the systemization of what the people of the civilized world in their experience had found best. Improvements, sociological and industrial, were slowly being made and economic law was determining conditions in its inexorable way. The logical thought was that further progress would be by evolution, not by revolution.

Even before the war there was unrest which had led in some European countries to policies savoring mildly of the socialistic and in the United States to ideas of the "new freedom," which did not reflect socialistic thought so much as it did the idea that the men who were conducting business were bad; or that business methods were bad. That idea, which colored our conduct during the war, proved very costly to us.

It is not my purpose in this work to discuss any further than I have done already in an earlier chapter the Marxian doctrine or the theories that find expression in Fabianism, near-Socialism, State Socialism, full Socialism, syndicalism, communism and plain go-as-you-please anarchism. The outbreak of the war

gave the prophets of those isms the opportunity to denounce it as a capitalistic war, and amid the horrors of the war the seeds of their fallacies, which they sowed persistently, fell on fertile ground. When the United States went into the war there was the same outcry about its being a business war, a Wall Street war. The truth was that the conscience of the business interests, aroused when the Lusitania was sunk, had been restive until the mass of the people had been awakened from their lethargy, although they knew that they were renouncing the profits they had been making out of Europe, and moreover that henceforth they were going to be obliged to carry the burden more than anybody else. Both here and abroad the burden was increased by the activities of the exponents of socialism.

The practical dangers of socialism and the impossibility of communism had been clearly portrayed by economists and publicists. The ideas in favor of such movements had been viewed during two or three generations as being so preposterous that the prospect of their making any headway was not, at the beginning of the war, seriously regarded as imminent. Yet even then the poison was being introduced into the minds of men all over the world. With the war it spread rapidly. And finally the people of Russia went mad and tried the experiment; or perhaps it should be said rather that the people as a whole simply allowed passively the experiment to be tried by the fanatics who seized the government.

We have had therefore in Russia the most gigantic test in the history of the world of the fallacies that originated in the eighteenth century with Rousseau and were spread by him and his successors, who

befuddled by their notions respecting the "rights of man" paid no attention to his human nature. Socialistic experiments were tried in France, after the Revolution, and failed. They were tried subsequently on a small scale in numerous communities in various parts of the world, and failed. They were introduced in Mexico in the revolution that was led by Madero and brought that country to disaster. So with our own state of North Dakota. The Russian experiment was the most colossal of all.¹

The results of the Russian experiment have been summarized dispassionately by Leo Pasvolksy in a recent work on "The Economics of Communism." An illuminating resume has also been given by Boris Sokolov, a Russian economist, in *Volia Rossii* of Dec. 1, 4, 8, 10, 14 and 18, 1920, a translation of which was published in the bulletin of the Russian Information Bureau of the United States of Jan. 15, 1921. I have drawn on those contributions and also private communications from Russia.

Briefly, the Russians managed reasonably well for themselves only so long as the stocks of goods lasted and could be appropriated from their rightful owners. The evil element that attached itself naturally to the Bolshevik party enriched itself by the loot of gold, jewels, furs, and other valuable, easily transferable property, which gradually found its way out of the country. The peasants appropriated and divided among themselves the land of the great estates, but

¹ The present constitution of Mexico is as revolutionary as any socialist could desire. This constitution denies the right of private ownership and possession. Russia has Sovietism in operation; Mexico has Sovietism by constitutional decree. The people of North Dakota are not socialistic, but they permitted socialists to try an experiment on them.

incidentally they destroyed much of the plant that was formerly used for operating them. Having acquired the land that they wanted the peasants who were in no wise communists in principle stood aloof and offered a passive resistance to the theorists and fanatics.

In the meanwhile the city proletariat, which was never very numerous, began to decrease at a catastrophic rate, production decreased in even greater proportion than the diminution in the number of workers and the means of manufacturing and transportation fell into a state of disrepair. Great cities—Moscow and Petrograd—dwindled to mere fractions of their former population. Whither did the people go? Many died from disease and malnutrition. More migrated to the country. All workers who were in one way or another connected with the rural villages returned to them, where they engaged themselves in home industries, opening small workshops, rudely and poorly equipped. The reason for this was that the wages of the workers in the factories became pitifully low, food grew scarce and the prices for food soared incomparably faster than the wage scale could be raised even in paper rubles. In a report read before the Society of Physicians in August, 1920, it was admitted that the nutrition for the working class was highly unsatisfactory. The Petrograd worker could not get to exceed 700 to 800 calories in food, which was but one-fifth of his former consumption and “this caused the working class to die out.”

All of this was due to the inability of the Bolsheviks to manage, to their ignorance of the fact that industries will not run themselves and that neither workers

en masse nor politicians know how to run them. The managerial class, the intelligentsia in general, had previously been expelled as enemies of the ideal communistic society.

In the end the Soviet government became panicky. In 1920 it began to militarize industries. At first this was only on the railways, but gradually it was extended to the coal mining, metallurgical, lumber, flour milling, and sugar industries. This militarization amounted to a complete and unconditional submission of the workers to the orders of the factory administration, and made the workers subject to severe and harsh treatment and to penalties for even slight infractions of the rules. In other industries the bonus system was reintroduced, although one of the slogans under which the Bolsheviks rose in 1917 was the repudiation of the bonus system. Lenin in November, 1917, had said "The bonus system is a heritage of the bourgeois, capitalistic regime and we repudiate it." Actual life, however, compelled the Bolsheviks not only to return to the bonus system, but to introduce it where it had never been before. Also, overtime work was not only reintroduced, but in some branches of industry it was made compulsory. In some industries the working day was lengthened to 13 hours. Finally, the intelligentsia was implored to come back on almost any terms in order to give their aid in the management of industries.

In the meanwhile the Soviet government came to control only Moscow, Petrograd and some of the large towns, while the provincial districts became practically self-governing. The Soviet government had long before gone against its own communistic principles and recog-

nized the peasants' right to own land and to have free trade in their produce. A decree to that effect was promulgated early in 1921 in order to induce the peasant to produce more than he consumed, but this failed to have the desired effect. The discontent of the peasants was extreme owing to the continual appropriation of their produce. From time to time the Soviet government endeavored to exercise its control by oppressive measures, sending out the Red Guards to enforce them. But such policy was hopeless for the Bolsheviks did not have sufficient troops to carry their decrees into effect.

Eventually, the leaders of the Soviet government fell out among themselves. One faction of which Lenin, Lunarcharsky and Krassin were the heads, became desirous of making concessions to the so-called capitalistic system. The opposing faction was composed of the extremists, with Trotsky and Litvinoff as the leaders, who were fanatics and were supported by the Secret Police, made up largely of criminals and spies. The Secret Police was a terrorist organization with unlimited powers. Even the commissars were in terror of its arbitrary power of arrest, imprisonment and death. The chiefs of this organization were about 400 violent extremists, many of whom were criminals, who sat in the councils of the central government and were largely the cause of the terror that reigned in Russia as late as the middle of 1921. I am summarizing private correspondence from one of the best authorities on Russia.

At length Lenin revised his ideas and in substance admitted that the terrible experiment that he had inspired and conducted had been a mistake. He

made overtures to capitalists for their return to the management of industry. Alas! the correction of things was not to be so simple. The peasants, harassed and robbed, had been deprived of any incentive to produce more than for their own needs. Planting was restricted. Through a combination of underestimation and adverse climatic conditions they failed this year to produce enough for their own needs and famine and pestilence overtook the unhappy land.

In October, 1921, in an address to the Congress of Political Workers in Moscow, Lenin confessed that the efforts to win the specialists had failed, that it had been a last resort, and that the whole communistic experiment had failed. He declared: "We must face the fact that we are re-establishing capitalism, and also the question of whether the peasantry will follow the capitalists or the communists. If the capitalists organize quicker and better they will send us communists to the devil. I say to you: Go into business. Work with the capitalist by your side, both Russian and foreign, who will get 100 per cent out of you. Let him get rich. But learn from him. It will be hard, difficult, wrenching toil, but all of us must do it, for there is no other way out. The time for drawing political pictures of great aims is now past."

The experience of Russia should be an object lesson to socialists and communists everywhere. There is reason to believe that this is appreciated among the leaders of organized labor in both Great Britain and America. They do not appreciate, however, that half measures, like nationalization of industries, are of the same nature and would inevitably lead to the same end. They evince a desire to skirt the line of

danger without going over it. But in truth there is no well-marked line of danger. Every step in the direction of socialism and communism is dangerous. Our labor leaders who are scheming to bring about the nationalization of the railways and the collieries are trying to take such a step. The representatives in Congress who bow to the wishes of the farmers and workers in the framing of a system of taxation that falls mainly on the rich, "mulcting Dives in order to be easy on Lazarus," are actually, perhaps unwittingly, taking such a step.

The literature of the recent period has been largely in favor of socialistic tendencies. Academic writers and publicists have promoted such thought with something akin to the oratory that drowned Russia. Labor has listened welcomingly, for the underlying thought in the teachings is that somehow mankind is going to get a living without working, and ought to; and most people do not like to work. Some of the more timid among the propertied classes have surrendered in admissions that labor did not get all that was due it before the war and that henceforth there is going to be a squarer deal. There is a prevalent belief that "Power has so far gone to labor that it can not be turned back." That is a mistake. The forces of human nature and economic law will turn it back, and capitalism does not need to fight with cunning or desperate weapons, or even to fight at all except to prevent the senseless destruction of property. The relationship is analogous to that between the elephant and its *mahout*. The experience of Russia has proved all this. Pre-war Russia may have had evils in its industrial organization. There is no country that is

free from evils, and most of the industrial countries of the civilized world were further advanced than Russia, but whatever were the evils in Russia they were not owing to capitalism. The trouble with old Russia was that it did not have capitalism enough.

As a practical conclusion we come to this: Socialism aims at achieving the betterment of humanity by bringing all people down to the same level of misery. On the other hand the old economic system, regardless of the resentment against it among dissatisfied people, was uplifting. The recent history of Russia has proved the former statement. The history of the world since the introduction of the steam engine has proved the latter. Socialism has ever been a promotion of the talkers. Capitalism, so-called, is the product of the doers. In the early days of the Russian revolution affairs, economical and political, were engulfed in a sea of talk. In the feeble, ineffective, vacillating days of Kerensky, one of my friends, especially experienced in the management of industries in Russia, remarked to me that the chances for the early resurrection of that country would be immensely enhanced if all Russians were suddenly struck dumb. The river of talk ran through several years, but in the final misery of famine and pestilence even oratory ceased.

The results of milk-and-water approaches toward socialism in other countries have been the same. It has been found that the great economic laws of nature can not be disregarded without bringing disaster upon everybody. It has been tried by political laws to prove the contrary. All such attempts have failed. Immutable economic laws teach that:

1. Wealth, and consequent comfort, can not be

increased by reducing the work that is the only thing that can produce wealth.

2. The apparent increase of wealth by increasing the cost of producing it is simply the blowing of a bubble.

3. Waste in luxurious living and extravagance in governmental administration is not an increase of wealth, but is a direct diminution of it.

4. Redistribution of wealth is not an increase of wealth, and when put into effect produces results that dissipate wealth.

CHAPTER XII

EUROPEAN LOSSES

If there were similar surveys of the wealth of the other nations that were in the war and the economic consequences of the war to them the results would be found similar to those experienced in the United States, but in different degrees.

The United States suffered no direct physical ravages of war, but nevertheless its physical wealth per person diminished. It lost but relatively little in life. It suffered a good deal in the morale of its people.

Great Britain was the victim of some direct attacks, but its losses of physical property thereby were relatively small. What were its losses by impairment of plant I have no idea. I conjecture they must have been relatively greater than in the United States. Her loss of time was immense and owing to that and her direct military wastes she had to mortgage her future very heavily. Her loss of life was stupendous. The impairment in the morale of her people is grave.

France lost all that Great Britain did and much more. She was invaded and suffered an enormous destruction of physical property in her most important industrial region. The impairment of her plant in all parts of the country must be grievous. She lost an immense investment in Russia.

Germany, free from invasion except by the Russians in the early months of the war, lost but little by direct ravage, but her loss by wear and tear and general deterioration must have been immense.¹

¹ See Appendix D.

Russia lost, proportionately, most of all.

There is a tendency on the part of some writers to minimize the economic consequences of war. Thus J. Laurence Laughlin in "Credit of the Nations" says "countries with a simple economic organization when devastated by war recover with startling rapidity, provided productive laborers are returned to the soil and to factories. If supplied with only the scanty capital sufficient to cover the means of subsistence and the minimum of the necessary implements of production, in a very short time a country by such enforced saving will accumulate as large a capital and will turn out as much wealth as before the war. The situation is one which develops enforced saving. Of course new and expensive equipment must wait."

Alexander D. Noyes in a recent address said: "This is not by any means the first time that economists have proved that a war could not be paid for. But the predictions have never heretofore come true; on the contrary, it is a strange testimony of history that after the period of recuperation, longer or shorter as the case might be, even the belligerent nations turned out to have become richer and economically more powerful than ever before, the world's trade larger than ever before, and prosperity and accumulated wealth greater than ever before. In this I am not giving theories or arguments, but well-known facts with which every one is familiar."

Such optimistic and encouraging opinions, based as they are upon precedent alone, fail to take into account the fact that the Great War was unprecedented. Battling nations may possibly in the Thirty Years War and in the Napoleonic wars have strained themselves

financially in as large proportion to their resources as they did in the Great War, and possibly not so. I doubt if there be any good means to determine that point, even if it were consequential. It is certain, on the other hand, that there never was a general war in which there was such great destruction of physical property, for never until the last one did military engineers have the means to accomplish it. In the Great War there were thousands of square miles of agricultural land literally ploughed up by high explosives, whole forests were razed, and many towns were demolished so that only heaps of brick and stone remained. Roads and railways and manufacturing machinery were worn out. Even in a country so remote as the United States were the physical effects of the war clearly to be seen. These were not consequences from which any nation could recover with startling rapidity or conditions predicated a general enrichment after a period of recuperation.

In his book on "Direct and Indirect Costs of the Great World War," Professor Ernest L. Bogart has summarized the loss of property as follows:

Belgium.....	\$ 7,000,000,000
France.....	10,000,000,000
Russia.....	1,250,000,000
Poland.....	1,500,000,000
Servia, Albania, Montenegro.....	2,000,000,000
East Prussia, Austria, the Ukraine.....	1,000,000,000
Italy.....	2,710,000,000
Rumania.....	1,000,000,000
British Empire.....	1,750,000,000
Germany.....	1,750,000,000
<hr/>	
Total land losses.....	29,960,000,000
Ships and cargoes.....	6,800,000,000
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Grand total.....	36,760,000,000

To this he adds military costs, capitalization of value of human life lost, the loss of production, cost of war relief, and some other items and arrives at a grand total of 338 billion for the total cost of the war. I do not think that Professor Bogart's staggering estimate will withstand economic and engineering analysis, which comment is not to imply, however, that the loss to the world by the war was anything short of stupendous.

Official statistics were recently given by M. Loucheur, the Minister of the Liberated Regions, showing what happened in France, and what had been accomplished in reconstruction up to May 1, 1921. After showing that 5,154,000 of the 8,400,000 Frenchmen from 19 to 50 years of age mobilized during the war were killed or wounded, the statement presents the following statistics of civic reconstruction:

Inhabitants.—Deported because of the war, 2,500,728; returned to France 1,975,798.

Municipalities.—Abandoned 3,256; reestablished 3,216.

Schools.—Before the war, 7,271; reestablished, 6,830.

Houses.—Destroyed 789,000; rebuilt, 10,213; repaired, 326,700.

Land.—Devastated, 8,240,000 acres; cleared from projectiles, wire entanglements, and trenches, 6,881,000 acres.

Agriculture.—Farm land devastated, 4,571,000 acres; farms now cultivated, 3,420,000 acres.

Livestock.—Horses and mules carried away, 367,000; restored, 96,303; oxen carried away, 523,000; restored 120,263; sheep and goats carried away, 469,000; restored, 121,164.

Roads.—Destroyed 32,960 miles; temporarily repaired, 18,825 miles; definitely repaired, 8,426.

Factories (each having at least 20 employees in 1914) 5,297; destroyed 4,700; resumed operation, 3,645.

Many countries suffered so greatly from direct and indirect loss of life, crippling of persons and impairment of health that they no longer have the manpower to effect any quick recuperation. Look only at the military casualties. The following is the statement of these made by the British prime minister to the House of Commons in 1921:

	<i>Dead</i>	<i>Wounded</i>	<i>Total</i>
Great Britain.....	743,702	1,693,262	2,437,964
Canada.....	56,625	149,732	206,357
Australia.....	59,330	152,171	211,501
New Zealand.....	16,136	40,729	57,405
Newfoundland.....	8,832	15,153	23,985
India.....	61,398	70,859	132,257
France.....	1,385,300	•	•
Belgium.....	38,172	44,686	82,858
Italy.....	460,000	947,000	1,407,000
Portugal.....	7,222	13,751	20,973
Rumania.....	335,706	•	•
Serbia.....	127,535	133,148	260,683
Greece.....	5,000	21,000	26,000
United States of America.....	115,660	205,690	321,350
Germany (approximately).....	2,050,466	4,202,028	6,252,494
Austria and Hungary (approximately)...	1,200,000	3,620,000	4,820,000
Bulgaria (approximately).....	101,224	152,400	253,624
Turkey (approximately).....	300,000	570,000	870,000

*No record.

M. Loucheur has given the total for France at 5,154,000. Nobody has reported the losses of Russia and Poland and nobody knows, but vague figures run to many millions.

Finally, there was never another war in which the

morale of the people suffered such deterioration, never another one in which the masses of the people after having been cajoled to fight for their own good failed so completely to understand that they could not be forever paid except for what they earned, never another one in which the virus of socialism and communism so infected the minds of the people. Three years after the armistice Great Britain and America were but approaching the crisis of unemployment and Russia, politically and industrially prostrate, was being decimated by famine.

There has been an impairment of moral conditions, which perhaps outweighs all material losses and factors. This is especially the impairment of the principle of authority. "The principle of authority," says Professor Ferrero in his last book "is the key to all civilization; when the political system becomes disintegrated and falls into anarchy, civilization in its turn is rapidly broken up." In the opinion of Professor Ferrero this is the greatest danger for Continental Europe. "The World War has produced many ruins, but the others are trifling in comparison with this destruction of all principles of authority." Even if we be not so fearful as Professor Ferrero, having great confidence in the minds and means of an engineering age, we must nevertheless recognize the predominant importance of a principle of authority in the guidance and controlling of mankind. This is equivalent to saying that the greatest of all economic assets is good government. The present economic position of the United States is not merely due to our being a virile people in possession of great natural resources, but also to the fact that we have known how to devise for ourselves a

system of good government. It is upon that that our optimism must be founded; and we must be careful that we preserve our principles.

With psychical and personal conditions as they are now in Europe, with the finances of every European country, except Great Britain, in a state of chaos, and with a staggering debt overhanging each of them, it is an optimist indeed who can see anything like an early recovery to the pre-war state of affairs in commerce and industry and the pre-war scale of living among the peoples of Europe. It is an optimist, indeed, who can see anything in Continental Europe short of despair. Europe is destined for not merely a few years, but rather for a generation, of hard work, drudgery and a lower scale of living. As yet, only the Germans have realized this and set themselves to it.

There are but two logical deductions to be made from the situation and prospects of Europe insofar as the United States is concerned. One of these is that Europe will offer to sell us manufactured goods very cheaply and we shall not sell her so much as formerly. The other thing is that while Europe will still buy a good deal of our raw materials, she will hardly take so much of them as previous to the war, owing to her present poverty. It is impossible to escape from these deductions. In fact these trends of events are already distinctly in evidence. We may try to exclude the manufactures of Europe by means of self-protective tariffs, but if we succeed in doing so, it will be at the peril of the debt that is owed us (without regard to the 11 billion due to our government) and we shall not be able to sell our own manufactures to Europe. In spite of anything that we may do with tariff barriers

we can not keep Europe out of the markets of South America and the Orient. Europe will, of course, continue to buy of us the raw materials that she can not get plentifully from elsewhere—cotton, copper, petroleum, and wheat—but she will not buy so much as she used to. Thus, she will buy copper to manufacture and sell to other countries, she will buy it for the repairing of her own plants and even for making economic improvements, but she will not buy it for the ornamentation of buildings or for raising her scale of living, because she will not be able to afford to do so.

A committee appointed by the Chamber of Commerce of the United States to visit Continental Europe for the purpose of observing conditions submitted the following report in September, 1921:

“There is evidence on every hand that the world is now operating on a basis of less than half of the pre-war standard, although a few industries are enjoying full or nearly full activity in some countries.

“There are no dependable figures to measure the great decline in consumption, but European economists whose opinions are highly regarded declare that the consumption of 300,000,000 people has been reduced, on the average, to almost 30 per cent of what it was previous to the war.

“There is a great need of raw materials, food, clothing, and all kinds of manufactured products. Millions of people want the commodities which others could supply. They are unable to buy because their money is so reduced in value that it has little buying power. Every purchase at the present high rates of exchange means payment at a price which is nearly prohibitive. This generally means the issue of more paper money

and consequent further contraction of the already limited buying power.

“While marked progress has been made and there has been a surprising degree of improvement in some directions even in the last year, it is apparent that business in Europe has come to a definite pause, and is not likely to resume the movement forward until the armed conflicts which still persist there are stopped and the menace of recurring warfare is removed.”

CHAPTER XIII

THE ECONOMIC POSITION OF AMERICA AT THE END OF 1922

In the years immediately preceding 1914, the American people earned an aggregate income of 33 to 34 billion dollars, of which they saved about five billion, the annual saving being expressed mainly in the form of houses and railway extensions; to a less extent in public utilities, public improvements, factories and mines; and to a very small extent in foreign investments. It appeared needful that we should save and invest annually in these ways about 15 per cent of our aggregate income in order to keep the development of our plant, so to speak, ahead of our steadily growing needs. The common knowledge that at present our housing and railway facilities are inadequate suggests immediately that we have been running behind the pre-war ratio of reinvestment.

Since 1919, we have not had any jointly studied estimates of the national annual income. However, with some experience in this subject, I have ventured to make rough estimates, which rest on solid foundations, although some rather empirical developments are involved. Such estimates would be considered good work in this field if they fell within limits of 10 per cent, plus or minus. Even so, these data are more useful when quickly available than more accurate

data that are belated; for recognizing that there is a margin of error we can at least get a reasonable and approximate idea of how things are going.

Our annual income was about 72 billion dollars in 1920; 55 billion in 1921; and 59 billion in 1922; a grand total of 186 billion for the three years. If we had conducted ourselves according to the old principle of reinvesting 15 per cent we should have saved about 28 billion dollars for that purpose. Just what we have done is extraordinarily difficult to determine. We have put about nine billion dollars into buildings during these years. The flotation of state and municipal bonds and the securities of railway traction and public utility companies has been about seven billion dollars. We have put an indeterminate amount into new industrial plant, but probably not very much, for we were already overbuilt, in general. We have made foreign investments to the amount of about two billion dollars and we are estimated to have put about one billion dollars into our speculation in German marks, which may be considered lost.

We can not properly foot up these figures, for in large measure the bond issues represent refunding operations. Out of railway financing to the aggregate of 1100 million dollars during two of these years about 40 per cent was for refunding. Our state and municipal loans are generally of a refunding character to a large extent. It is well known that our foreign investments since 1919 have been largely of the same order. I hazard the guess that of the total invested in these ways, other than building, during the last three years about five billion has been new money, *i.e.*, savings.

This would indicate a grand total of about 14 billion

dollars put into new investment during these years.¹ There are no present means for determining how much of this was for the replacement of worn-out and vanished capital, but we may be sure that more or less was for that purpose. For example, while we were erecting new buildings at cost of about nine billion dollars, we were losing old ones by fire to the aggregate of about 1½ billion. I am strongly of the opinion that inventory at the end of 1922 as compared with the end of 1919 would not show a gain equal to the new money invested.

Besides the uncertainty respecting refunding, there are surely some duplications; and also without doubt there are omissions from these estimates of savings, which are avowedly vague. The general truth of a diminished rate of saving must be evident to any one who stops to think about what he sees. I am merely trying to make a rough, quantitative expression of this. I think that it is a reasonable deduction that whereas we used to reinvest about 15 per cent of our net income the rate has lately been only 7 or 8 per cent, which is probably an overstatement rather than an understatement. The increase in savings bank deposits and life insurance premiums, both of which gained substantially in 1922, shows that fortunately there are some thrifty people still among us, but does not necessarily mean capital gain. It is out of those reservoirs that bond issues are fed.²

¹ The National Industrial Conference Board arrived independently at a conclusion to the same general effect.

² Savings bank deposits may reflect nothing but a shifting of claim upon the national wealth, as explained in Chapter IV, and the recent gain under this head certainly has that significance. Increase in life insurance premiums may indicate a curtailment of private investment, the premiums collected by the companies being invested by them.

The stupendous figures for annual income that are estimated for the last three years do not show that we have been increasing our productivity. They mean that we are still measuring in terms of inflated dollars (1913:1922::1:1.7 approximately). While population increased from 1913 to 1922 by about 12.5 per cent, and correspondingly the number of available workers, the production of all commodities, aggregated, in 1922 was about on the level of 1913. So with exports, while imports were a little higher. The employment of factory workers rose in the latter part of 1922 about to the level of the middle of 1914. Building in 1922, while the greatest on record in terms of dollars, was less than in 1913 in terms of quantity (floor area). Transportation, in terms of ton-miles, was substantially more in 1922 than in 1913, but this was due to carrying the average ton of freight more miles.

These headings account for the occupation of the major part of our producers. Outside of these are the hand-trade workers, shopkeepers, clerks, bankers and merchants and their employees, private servants, government employees and professional men, whereof the shopkeepers and their help are the largest unit. The farmers are not increasing numerically except in insignificant degree, wherefore the increase in population means a proportionately larger increase in the available number of town workers.

The statistics that are available, which it would be wearisome to present in great detail, establish some important facts, and there are other things that are indicated, but always a distinction must be made between the certain and the conjectural.

1. The number of farms on Jan. 1, 1920, was 6,450,000, which was but a trifle more than in 1910. The quantity of agricultural produce in 1922 was about 15 per cent more than in 1913. However, the harvest of 1922 was less than that of 1915 and we may ascribe the bounty of 1922 to beneficent weather rather than to anything else. About one-third of the 12,000,000 automobiles in operation in the United States is supposed to be owned by farmers. Manifestly this advance in the mechanicalization of agricultural life has not *ipso facto* increased agricultural production. Without any doubt it has afforded the farmer more comfort and diversion, but it is an open question whether the cost thereof is not too great. Some Iowa and Kansas bankers allege that it is.

2. Railway traffic in terms of ton-miles, if represented by 294 in 1913, was 338 in 1922. We have been constrained, or led, or both, to move our freight a greater distance during the last few years. For a series of years previous to 1915 the average haul was steadily about 154 miles. Beginning in 1915 there was an increase and in 1920 the figure had risen to 181 miles, the average for 1921 being about the same. The causes for this are not well understood, but anyway it is not to be construed as a favorable economic factor. However, the railways were operated by about the same number of men in 1921 as on the average just before 1915. The ability of the railways to do more work without increase in personnel is wholly ascribable to managerial improvements, for the efficiency of labor has decreased. In pre-war years there was about 1.37 man per 1000 train miles. In 1919 this factor had risen to 1.71. In 1921 it has been reduced to 1.52.

3. The building mechanics of the country positively did less work in 1921 than in 1913. I have estimated a personnel of about 3,000,000 attached to this industry in 1916. In 1913 the number may have been a little less; in 1921 a little more. However this be, there was less work accomplished in the latter year than in the former.¹

4. Statistics of factory employment are unsatisfactory. There is a very good series for the State of New York, and statisticians are rather agreed that owing to the diversification of the New York industries these constitute a fairly reliable sample for the whole country. These statistics show employment in 1922 which in the latter part of that year was about rising to the rate of the middle of 1914 when this series began. It may be, of course, that the same number of men in employment is producing a greater volume of manufactures, or is converting the same quantity of raw material into manufactures of a higher degree than formerly, by virtue of better managerial organization, increased mechanicalization, new inventions, etc. In many individual plants and even in single industries as a whole there have been, without any question, important strides in these ways during the last eight years. Nevertheless, there is a good deal of evidence to the effect that such benefits are offset by decrease in the

¹ Building construction in the United States in 1922 was in terms of dollars the greatest of record, but as compared with 1913 costs were about 1.7:1. Quantitative statistics on this subject go back only two or three years and are not quite satisfactory. I have retrospectively estimated annual performances, going back 10 years, with the result that finds expression in my present text. Although there was necessarily a good deal of assumption in these computations the results found strong confirmation in the statistics of the production of the principal building materials—lumber, brick, cement, etc.

hours of labor and decrease in labor efficiency per hour, viewing the manufacturing industry as a whole.¹

It is needful to bear in mind, in this connection, that we are constantly depleting the bounties of nature. Our agricultural lands are being impaired much faster than they are being refertilized. We are constrained to go further away for our timber. (The increasing average railway haul may be associated, in part, with such changing conditions.) Our mines grow deeper and more costly to work. I have examined recently the records of four of the largest metal mining companies, operating different types of mines in districts far apart. Each of them shows during the last 10 years a diminishing output of ore per man-day of labor, but toward the end of the period one of these companies reversed the trend, which was specifically ascribable to managerial improvements. We are proud to think of our metal mining practice—and correctly so, I believe—as exemplifying the acme of mechanicalization in the handling of material on the large scale. We produce annually about 150 million tons of ore with only 150 thousand men. But we must reckon always that increasing inefficiency of labor is superimposed on increasing impairment of natural resources and that engineering and management are contending against the combination. I entertain the opinion that we are

¹ The National Industrial Conference Board has shown in its Research Report No. 52 that in 3,800 manufacturing plants, representing 26 major industries and accounting for upward of 25 per cent of the workers in those industries, between the middles of 1914 and 1920 the nominal week was reduced from 55.1 hours to 50.7. I have shown in Chapter II how labor efficiency per hour has declined in work where no counteractive mechanicalization has been possible, *e.g.*, bricklaying. Evidence of this kind may be greatly multiplied.

now going to be strained to hold our own rather than continue to give to the masses such uplift in the scale of living as inventors, engineers and managers conferred upon them from the introduction of the steam engine up to 1914.

It is far from my thought to disparage the important accomplishments that have been made in some industries, even since 1918. For example, the invention and introduction of the tungsten lamp has been an immense benefit. There have been spectacular economies in the use of labor in the manufacture of automobiles and automobile tires, while the development of the cord tire was an engineering achievement of the first order. Progress of those kinds, however, accounts for relatively few workers. Any great uplift must be looked for in branches of industry that employ millions of workers. Thus, one of our most wasteful economic operations is merchandising and distribution. The department stores, chain stores and mail order houses are introducing more efficiency in this field, but the results although striking in individual cases are scarcely perceptible in their effects upon the great mass as yet.

Some of the data I have presented here will be surprising to a good many who have listened to honest but misleading representations respecting the recovery from the depression that began in the last quarter of 1920 and continued into the first quarter of 1922. It is my opinion that the depression of that period was not merely an exaggerated cycle of depression of the pre-war type but was rather one of the incidents following war time dislocations that will be very long in relocation or correction. Statisticians and economists are using a variety of scales in making com-

parisons, and when it is said that present production is at a certain rate in comparison with "normal" it is important to know what the yardstick is. Some make comparison with the abyss of 1921; others with the peak of 1920. A rather common basis is 1913, which was the last full year before the outbreak of the war and the beginning of vast economic disturbances. Even in the last case, there are differences. Some make an absolutely quantitative comparison with 1913, while others compare with an "adjusted normal" which means the assumption of an average rate of increase, continuing previous lines, as if nothing disturbing had happened between 1913 and 1922. The difference between the last two methods is that in the former measurements are made with reference to a horizontal line, while in the latter they refer to an oblique rising line.

If we examine the course of a good deal of fundamental data in comparison with the line for increase in population, we shall see that physical productivity rose in about the same proportion up to 1918, following which a general downward trend started.¹ If we connect 1913 and 1922 we get practically a horizontal line, while the population line has risen by about 12½ per cent. The divergence between these lines suggests the conjectures that something new began to happen about four years ago; and that since then we have been diverting too many workers to unproductive service, that workers are enjoying too much the luxury of leisure, and that the workers in occupation are functioning with diminished efficiency. These conjectures

¹ A study reported in the Federal Reserve Board bulletin for December, 1922, shows the same thing.

would follow from a mere examination of the lines. Collateral evidence appears to support them.¹

I come to the conclusion that the American people are not working enough and consequently are not producing enough, and out of what they are producing they are spending too much for high living, it still being true as James J. Hill tersely stated many years ago that our trouble is the cost of high living, not the high cost of living. There is not, however, a general enjoyment of high living at the present time, that which we observe being mainly on the part of some classes at the expense of other classes. If there were not such a maladjustment the extravagant would not have the wherewithal to squander. In other words, a large part of the national income that used to be saved by thrifty people now passes into the hands of wasters. Even so, it is questionable whether the high living of those classes be not fictitious, and whether the actual scale of living by the American people be not already inferior to what it was in 1913. We have more automobiles, telephones, electric lighting, cinematographs, etc., to be sure; also we have a sufficiency of food. On the other hand, our railway transportation service is manifestly poorer, our means for urban and suburban transit are not so good as they used to be and there is a pronounced

¹ The evidence respecting workers functioning with diminished efficiency is positive. The luxury of leisure appears in shorter hours of work per nominal week, more holidays and increased turnover. The evidence of prolonged automobile touring, particularly in the West, has attracted the attention of many observers. Diversion of labor into unproductive service is positively expressed in governmental expenses, which in 1922 amounted to 10 per cent of the national income, compared with 9 per cent in 1913. So much for public service. In private service there has been a great diversion into automobile driving, garage tending, etc., to mention just one thing.

inadequacy of housing. Our clothing is perhaps inferior. Many little conveniences that we used to get easily in the shops are now unobtainable. During 1922-23, important parts of the country lacked coal enough, in the course of a severe winter. I hesitate to speak oracularly on this subject, and I merely draw attention to the advisability of considering whether in the craze for amusement we have not lost some of the substantial things that contribute to the comfort of the people. We might even inquire whether the possession of too much spare time does not create the need for amusement.

What does this mean for us? I made a good many forecasts in the earlier chapters of this book. Some of them have proved correct, others not so, but the error of the latter has been in timing rather than in the theoretical deductions. Human psychology may confuse economics for a more or less time, just as it may the management of a corporate business. After all, this is a very rich country and its people can continue to do bad things longer than would be possible for a poorer people. Among my miscalculations were these: The automobile industry did not decline in 1922 as it was thought it would. Why it did not has been sufficiently explained in this chapter. It was foreseen that 1922 would be a year of great labor trouble, and such was the fact, but the outcome was different from what was expected, and this too was ascribable to the ability of large classes to resist deflation so long as maldistribution prevails. It was foreseen that there would be a building boom and that we should have a guise of prosperity that would make us forget about Europe and disregard the bearing of foreign economic affairs upon us. This

has happened just so, but too soon. The real building boom should have been delayed until building could have been done more cheaply, but artificial stimulants, such as tax abatements, contributed toward a premature movement. However, the need was great and the attraction of high rents was a powerful speculative influence.

Manifestly, extravagance in living may produce activity in business and the appearance of prosperity for a long time. The classes that capture an undue share of the national income and desire to enjoy it cannot themselves find a means. They must be provided with luxuries and amusements by entrepreneurs and manufacturers, who simply alter their manner of functioning. Thus the proceeds of these classes are passed on to business, which may thrive accordingly. There will be wastes and irregularities, and conditions leading to upturns, to be followed quickly by setbacks, the latter tending to be of greater magnitude than the upward movements. These courses may continue for a long time before it be really discovered that we have been squandering what ought to have been put into capital goods and conditions become unendurable. With that realization we shall be prepared for sound readjustment.

I do not think that any intelligent person can be under the delusion of a general prosperity at the present time, considering the state of our external economic relations and the position of our farmers, who constitute about 30 per cent of our population. We hear it said sometimes that the position of the Southern farmer has improved by virtue of the high prices for cotton, which is ascribable to the boll weevil, but not even the Southern farmers are really deluded by the notion that waste

inadequacy of housing. Our clothing is perhaps inferior. Many little conveniences that we used to get easily in the shops are now unobtainable. During 1922 23 important parts of the country lacked coal enough in the course of a severe winter. I hesitate to speak emphatically on this subject, and I merely draw attention to the advisability of considering whether in the craze for amusement we have not lost some of the substantial things that contribute to the comfort of the people. We might even inquire whether the possession of so much spare time does not create the need for amusement.

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I do not think un- ti- direct cost thereof

part of the American Warfare is not com- materials and labor.

is a road to prosperity. It is in no wise beyond the bounds of possibility, however, that some quack remedies like special credit extensions or inflation on the basis of our great hoard of gold may be tried and may produce a fictitious prosperity of more general distribution.

We may be sure that maneuvers of that kind will be of no more than temporary effect and that the only permanent solution is increased production and increased saving, which are going to be the result of more work and less amusement. In the course of time the American people will learn that good railway service is more important than unlimited automobiles, and that houses are really more desirable than garages.

CHAPTER XIV

TAXATION AND THE EXPENSE OF GOVERNMENT

The present administration has made sincere and effective efforts to reduce the expense of the Federal Government, but it has reached a point beyond which it seems difficult to go. This is ascribable to the large part of the budget that is represented as war expense. There is no doubt that this spells high taxation for many years to come. Nevertheless, although a large part of the taxation will be attributable to the war, the paying out of the proceeds of that taxation by the government will not be war expense, except in minor part. It will be useful to explain the economic meaning of this situation, for it has bearings upon several open questions, such as a bonus to the ex-soldiers, the foreign debt accounts, etc. It has a bearing also upon the common thought that the continued high range of prices for commodities and labor is attributable to conditions associated with payment of the cost of the war. It is indeed attributable to economic conditions developed during the war, but not to the payment of the direct cost thereof except in relatively small degree.

The expense of the war on the part of the American people was in the main paid concurrently with its prosecution. This was necessary. Warfare is not conducted with money, but with materials and labor.

Except for such previous production as was represented by stocks of goods, the requirements had to be supplied by coincident production. With the end of 1918 our war expense ceased, save for such production, *e.g.*, of ships, that was allowed to run on unchecked, the maintenance of our military forces during the period of demobilization, and the odds and ends that had to be carried on. When those last matters have been settled we shall be done, barring one important thing. Of course, our war expense began to contract right after the armistice and shrunk rapidly with the demobilization of the troops in 1919.

If we had not been able to obtain all needful material from our own sources and had been constrained to borrow it from foreign countries, incurring a foreign debt, we should have been in the quite different position of having to repay that material, or its equivalent, during subsequent years. The European countries had to come to us for such supplies. This outlines the fundamental difference between their present situations and ours. We were therefore compelled not only to furnish materials and man-power for our own warfare but also much for the Allies.

By the early part of 1917 our stocks of goods had been drawn down to a relatively low point, evinced by the extent to which prices had then risen, and from that time onward materials and handicraft could be derived only from new work. We could not supply the quantity required, subtract about five million men from our 40 million workers, and continue to do all the things for our domestic life that we had been doing previously. We met this necessity by putting to work more women and boys, more of the pre-war slackers,

and speeding-up all we could. In this way it appears, as we look back over the records, that we maintained production at about the normal rate of increase. This obviously would not have been enough for the purpose unless we had reduced our consumption in order to increase our margin and had diverted the marginal goods from our ordinary savings account, expressed as houses, railways, etc., to military purposes. Thus, the economic outcome was that we worked hard and economized, we sacrificed a large part of our normal savings, disregardful of the principle that about 15 per cent of our annual income ought to be reinvested in plant, so to speak, for our safe development, and we suffered impairment of our principal to the extent that we let our property run down, which was considerable.

I shall say nothing more about what seems to me to be the greatest of the losses of the world by the war, *viz.*, the destruction of morale, the revolt against authority and the inculcation of false economic ideas, which the United States has suffered in common with other civilized countries. It is that loss that tends to create despair. Confining ourselves, then, to the material losses, the American people incurred those that I have already enumerated and, moreover, the death and maiming of a large number of its men. For the aid of the sick and wounded and the relatives of the dead we are obligated to pay pensions and other charges to the aggregate of about 400 million dollars per annum, which must be borne for a long period of years. Apart from this we finished paying for the war about when the foolishly prolonged shipbuilding program was completed, barring some miscellaneous things that were not then settled and some that are still pending.

However, the annual budget contains the item of about one billion dollars for interest on the debt, which must be raised by taxation. While fiscally this is a real and important thing, economically the charges on an internal debt, which is the status of ours, are no outgo except for the cost of administration. However, the internal shifting of debits and credits may create serious dislocations. Obviously, what is paid in taxes by some people for this purpose is going to be paid out to other people in the form of interest and reimbursement of principal. In many cases the same persons pay and receive, though probably but rarely in equal degrees. In the main, there is simply a transfer of shares in the national income from some persons to others without there being any national disadvantage so long as the shifting does not affect the national saving capacity or practice. This is, however, theoretical rather than actual. Undoubtedly even an internal indebtedness that is so small with respect to the national wealth as is that of the United States has an adverse affect upon the national welfare, while an enormous indebtedness of this character, like that of France, may be disastrous.

There is need to direct attention to the burden of taxation and the proportion thereof with respect to the national income. This is a highly important subject, and there is a good deal of looseness of thought about it; generally it stops short of going to the fundamentals. In this connection there are several things that should be fixed clearly in the mind.

In the first place, our system of government causes taxes to be collected by the Federal Government, by the States, and finally by the municipalities and towns.

An individual may pay directly to these three political entities, not to any of them but to all of them. A comparison between federal taxes only and the total of taxes in foreign countries, such as a recent one by our Bureau of Internal Revenue, is therefore erroneous and misleading.

In the second place a distinction should be made between taxation and cost of government; for a part of the money collected by taxation may represent merely a transfer of money from some persons to others, as I have previously pointed out.

The cost of government is quite a different thing. Government implies the collective performance of service that the individual cannot do. The government may do things that are needless. It may do needful things in ways that are more costly than a corporation would do them, and thereby perpetrate and condone economic waste. Generally, however, the work of government is service and the government employee is a producer although he does not directly turn out commodities or manufactured goods.

It is difficult to analyze the receipts and expenditures of the Federal Government so as to bring out just what is economically desirable, even from the elaborate annual reports of the Secretary of the Treasury. The receipts and expenditures for the fiscal years ending June 30, 1914 and June 30, 1922, are summarized in the following table:

RECEIPTS	1914	1922
Customs.....	\$292,320,014	\$ 357,544,713
Income and profits taxes.....	71,381,275	2,086,918,465
Miscellaneous internal revenue.....	308,659,733	1,121,239,843
Sales of public lands.....	2,571,775	895,391
Postal surplus.....	3,800,000	81,494
Miscellaneous.....	55,940,370	536,916,625
Total.....	\$734,673,167	\$4,103,596,531

EXPENDITURES	1914	1922
Civil and miscellaneous.....	\$170,530,235	\$ 998,256,379
War Department.....	208,349,746	396,180,775
Navy Department.....	139,682,186	456,338,787
Indians.....	20,215,076	38,500,413
Pensions.....	173,440,231	252,576,848
Postal deficiency.....		64,346,235
Interest on debt.....	\$ 22,863,957	989,485,410
	<hr/>	<hr/>
Total ordinary.....	\$735,081,431	\$3,195,684,847
Debt retirement.....		\$ 422,352,950

Under the head of miscellaneous receipts is included a good deal for which the people were not directly taxed, such as the proceeds from the liquidation of war material. Under the head of civil and miscellaneous expenditures in 1922 are included the following, which I give in round figures: Veterans' Bureau, \$400,000,000; Shipping Board, \$87,000,000; on account of Transportation Act of 1920, \$139,000,000; War Finance Corporation, \$94,000,000; Grain Corporation, \$32,000,000; Sugar Equalization Board, \$15,000,000; total, \$767,000,000. This total, plus the debt interest, a grand total of about \$1,756,000,000 may be considered as expense consequential of the war, leaving about \$1,439,000,000 as the total cost of the Federal Government in 1921-22 in terms comparable with 1913-14 when the total was about \$735,000,000.

According to Research Report No. 55 of the National Industrial Conference Board the expenditures of states, counties, cities and towns in the fiscal year ending June 30, 1914, aggregated \$2,363,000,000; and in the fiscal year ending June 30, 1921, they aggregated \$4,524,000,000. Assuming that the expense for the fiscal year ending June 30, 1922 was about the same we may arrive at a grand total of \$5,962,000,000 for the cost of all government service in 1921-22, compared with about

\$3,100,000,000 in 1913-14. Adding the expenses directly attributable to the war, including interest and liquidation of the debt we arrive at a grand total of \$8,140,000,000 compared with \$3,100,000,000 immediately previous to the war.

If we assume that the prewar national income was about \$34,000,000,000, the cost of our government was 9 per cent thereof. The comparable cost of government in 1922 was 10 per cent of the estimated income of \$59,000,000,000 for that year, but nearly 14 per cent of the national income had to be taken by taxation in order to pay the charges on the debt and the lingering expenses on account of the war as previously pointed out, the former resulting in the transfer of money from some people to others, while of the latter more or less can be extinguished in the course of time. For example, the expense of the Shipping Board may eventually be cut out if the government goes out of the shipping business. The cost of maintaining the veterans however will be enduring.

Directly comparable prewar and postwar expenses of government show an increase of almost twofold. On the face of things this is an enormous increase. However, we must remember that the expense of government has been written up in dollars like other things. In other words, to make a proper comparison we must translate present expense into the terms of the prewar dollar. Having done that we must consider that what we pay in taxes is not giving something for nothing, although in our indignation we often fall into thinking as if that were so. Without any doubt a considerable percentage of what we hand to the govern-

ment is wasted,¹ and also without any doubt a considerable percentge is appropriated for unnecessary and even objectionable purposes, but the main part of it goes for very visible and indispensable service, such as administration, the army and navy, the maintenance of schools, the police forces, fire departments, etc.

During the last 10 years our population has been steadily increasing. By virtue of that fact alone we have needed more schools, more policemen, and more public service generally. In other words the requirements for public service are bound to increase along with the population. If the creation of goods by the direct producers fails to keep step, the ratio of cost of government to total national income in goods increases. If then the desires of the people increase in such ways as for more and better schooling, for more and better roads, for more automobiles and more policemen to regulate them, even for more governmental inquisition and supervision respecting private business, we experience the economic effect of an increased diversion of workers from direct production to service and the ratio of cost of government to the production of goods rises still more. I hesitate to try to push this analysis too far. What we really need are data respecting the number of persons engaged in government service, as to which there are no complete statistics.

In the Federal executive civil service there were 438,000 employees on June 30, 1916 and 542,500 on

¹ Based upon the conclusions of the recent report of a joint commission of Congress that sat for one year, there is an enormous waste in the expense of the Federal government, amounting to one-fourth of the salaries paid. Without any doubt there is an equally large waste in state and municipal government.

Dec. 31, 1922, the latter total being a reduction of about 100,000 from Dec. 31, 1920. These enumerations do not include the Army and Navy. William P. Helm, Jr., in the *Budget* for February, 1923, said, "Careful study of the occupational figures of the Census Bureau places the number of public servants in the United States at not less than two million." Mr. Dana, president of the National Civil Service Reform League, in his annual address, December, 1922, estimated a total of three million persons in governmental service. The New York State Civil Service Commission in its report for 1922 estimated that there were 290,000 employees in the public service of that state, with a total compensation of \$372,681,243, which would be about \$1,285 per person.

Obviously these estimates do not include the labor of persons who are furnishing materials to the government, or are doing work for it by contract, such as the building of highways and bridges. If we make allowance for such work in proportion to total expenses we may estimate that in 1922 the purposes of government were absorbing the labor of 4,500,000 persons, or more than 10 per cent of the total number of workers; and we may confidently arrive at the further conclusion that the percentage of labor diversion to public service was higher than in 1913-14.

CHAPTER XV

EUROPEAN CONDITIONS

With the passage of more than four years following the Armistice the production of the manufacturing countries of Europe has failed to attain prewar proportions and there are but few signs of recuperation although production in this juncture is the greatest need in every country. This is true especially of the greatest manufacturing countries of all, *viz.*, Great Britain and Germany. The affairs of France, insofar as they are reflected by the occupation of French workers and the national imports and exports, have risen more nearly to the normal, but it is to be borne in mind that a large part of the industrial activity of the French has been ascribable to repairing the ravages of the war. Russia has been in ruins resulting from the overthrow of its old social system. In Italy, according to a recent statement by ex-Premier Nitti, less work was being done in 1922 than before the war. Many great industries were dead and others were in danger. It was this situation that led to the overthrow of the parliament and the assumption of power by Mussolini. The only real recuperation in Europe appears to be in the smaller countries that are essentially agricultural, such as Jugo-Slavia and Poland.

In Germany there has been but little idleness. According to the statistics of the large trade unions (including over 6,000,000 members) unemployment in

1921 was at its highest monthly rate with 5 per cent and at its lowest with 1.2 per cent, and during 1920-22 the graph indicating this important phase of industrial life ran steadily at a high level. Nevertheless, the physical volume of German production has been woefully lower than the prewar rate, and the aggregate tonnage of imports has steadily exceeded the aggregate tonnage of exports. In 1913 German imports averaged 6,073,000 metric tons per month and exports 6,141,000 metric tons. In the first half of 1922 imports ranged from about 2,000,000 metric tons to about 4,000,000 metric tons, with a rising tendency, while exports, not including deliveries on reparations account, ran around 2,000,000 metric tons. The production of coal and coke that averaged about 17,000,000 metric tons per month in 1913, averaged only 13,664,000 metric tons in 1921.

The production statistics of Great Britain tell a similar story, but in Great Britain the employment statistics are very different from those of Germany. Out of about 12,000,000 insured persons, 16.2 per cent were reported unemployed in December, 1921 (the maximum figure) while at the middle of 1922 the rate of unemployment had diminished only to about 12.5 per cent. During the second half of 1922 there was not much change from the latter figure.¹ According to a statement by J. M. Keynes, published in the financial papers at about the end of January, 1923,

¹ Comparison between these data and American is illuminating. At the end of 1921 about 4,000,000 workers, other than agricultural, were unemployed in the United States, this being about 15 per cent. Following the second quarter of 1922 there was a rapid decrease in the rate and at the end of 1922 the percentage of unemployment in the United States was relatively small.

the "number of men in employment is now about the same as prewar, but there is no work available for the substantial increase in employable population since 1913. Those employed are probably producing on an average about 10 per cent less than formerly for approximately the same real wage. Without great improvements in technique and intelligence of trade and industry, it looks doubtful whether we shall be able to use the whole employable population except at the very top of periodic booms."

The evidence from the chief manufacturing countries of Europe being substantially the same it is important to search for the reason, or reasons, contemplating that while in the several countries there may have been different factors in operation and different superficial explanations, there may be found some common underlying reason and explanation. We may limit our examination to Great Britain, Germany and France, dismissing Russia, and considering that the other countries of Europe play but minor parts. If there be any single underlying economic influence, it may be expected to be exhibiting itself in such countries as Spain and Sweden, which did not experience the strain of warfare and escaped its physical ravages as well as in the larger industrial entities which did. In fact, we observe similar economic occurrences in them, and even in distant Japan.

Obviously, we must seek this explanation in something else than the German reparation bill of 32 billion dollars, which is probably more than that country can ever pay. Probably also, the Allies can never pay the whole of the 11 billion of dollars that they owe to the American government. It is certain that both of these

matters must be readjusted to some possible basis, but it is equally certain that neither of them is responsible for the decay in European economics. No one of the nations of Europe owing money to the American government has yet paid one cent on account and Great Britain is the only one that has paid any interest on the debt. I have in a previous chapter offered arguments in favor of the forgiveness of these debts, in whole or in part. I may point out, nevertheless, that a great deal of what is now owed to us is for credit that we allowed to Europe after the Armistice (it was when these credits were exhausted, about the middle of 1920, that the post-war boom collapsed) and that if proper use of these credits had been made they would have gone a long way toward the rehabilitation of the affairs of the allied countries.¹

Recent events do not alter the fundamentals of the situation. Great Britain has funded its debt to the United States on the basis of 3 per cent interest for 10 years; then 3½ per cent, and extinguishment in 62 years. France and Belgium have undertaken to enforce collection of reparations from Germany, previously declared in default, by occupation of the Ruhr region of Westphalia. The French and Belgian attempt to collect from Germany by force appears already to be a failure. Without any argument Germany ought to pay the maximum for which it is capable, but it can

¹ According to Dr. B. M. Anderson, Jr., in *The Chase Economic Bulletin* of Aug. 31, 1922, Europe received from the United States, subsequent to the Armistice, something like seven billion dollars, when both long time advances and open account creditors are considered—more than enough to have accomplished her rehabilitation had the proceeds been wisely used. Doctor Anderson puts the total debt of Europe to the United States at 17 billion, whereof 11 billion is governmental.

not pay enough without an adequate productivity; nor can enough be collected by force or by any other means. Great Britain in funding her debt has made an honest and valiant attempt to meet her obligations, as a good business man always tries to do. This does not necessarily prove ability, and it may happen that the agreement that has been made will have to be severely bent or broken altogether within the next few years.

In the discussions of the day on the subject of the international debts there is a wide difference of opinion. Many bankers and economists believe that by no possibility can these debts be paid, except by Great Britain, while the Hon. Herbert Hoover in October, 1922, declared that given time enough 95 per cent of this indebtedness can and will be collected. Obviously we should examine the facts insofar as they can be ascertained and consider the prospects for the future in the light of them.

In the first place a great deal of confusion is produced by loose comparisons of national indebtedness with national wealth. For example, the representations that the prewar wealth of Great Britain was 85 billion dollars and the present debt about 35 billion, or about 40 per cent, and that the French wealth was 65 billion and present debt about 30 billion, or nearly 50 per cent which I quote from a recent pamphlet, are both erroneous and misleading and result from failure to discriminate between internal and external indebtedness.

External indebtedness implies the payment of interest and principal abroad, which can be done only by the exportation of goods depriving the people at home of just so much; whereas in the payment of interest and

principal on internal debt no such thing happens. What is taken from some people in the form of taxes is paid to others as interest. This effects redistributions and unbalancing of conditions that may result in great economic disturbances, but the produce of industry remains at home and available to the nation as a whole. This is however purely theoretical. As a matter of fact such internal redistribution involves a national loss through the increase in governmental personnel required to attend to it, while disingenuous people perceive and grasp opportunities of diverting the good things of life to hands who have not gained them, with the result of national profligacy. An internal debt becomes therefore a decreaser of national efficiency.

However, the main things that determine a nation's ability to discharge a foreign debt are its natural resources, its developed national wealth, the numbers of its population and correspondingly its workers, the amount of the national income, and of course the amount of the foreign debt. The national income depends obviously upon the number of people at work, their efficiency in work, the nature of the direction of their work by good organization and management, and the extent to which the work of men and women is multiplied by the use of machines. If a country has great natural resources many workers will be directed to the production of raw materials from them, just as used to be done in Russia and has always been done in the United States. If a country be deficient in natural resources, perhaps unable to produce enough for its own needs, the workers must be employed in manufacturing, just as has been done in Great Britain and

Germany, in which event the nation will have nothing to sell for export except its work.

The national wealth of Great Britain was estimated at \$120,000,000,000 by Edgar Crammond, in 1920. According to the same authority the national income was £2,400,000,000 in 1913 and about £2,750,000,000 in 1921, but the 1921 income at 1913 values corresponded to only £1,440,000,000.¹ Included in the British national wealth are the foreign loans and investments of her government and people. The former amount to about £2,000,000,000 and may be doubtful assets, but Sir George Paish estimates the good investments to be still about £3,000,000,000. (See also Appendix E.)

A British income at the prewar rate of £2,400,000,000 or about \$12,000,000,000 at par of exchange would indicate the need for about \$1,200,000,000 annually for reinvestment if Great Britain were like other European countries, *i.e.*, governed mainly by the conditions of internal wealth, production and consumption. The British people are still in the fortunate position, however, of possessing a large external wealth, notwithstanding a considerable depletion thereof during the war. Great Britain is able therefore to divert a large portion of the income from its foreign investments to the liquidation of its indebtedness to the United States and the payment of interest in the meanwhile. The terms of the funding of this debt apparently require an annual payment of about \$150,000,000. Even under the prewar conditions of productivity this would be an onerous burden. At the present time, more than four years after the armistice, British productivity and earnings are less than in 1913. Manifestly the burden

¹ *Sperling's Journal*, February, 1922.

that has been assumed by Great Britain is relatively heavier under existing conditions than it would have been under those of 1913. If Great Britain could obtain similar payment from France, Italy and other countries that are in debt to her the situation would be greatly altered, but if they are unable to pay the United States they can not pay Great Britain.

The national wealth of France was estimated by Edgar Crammond at 92.5 billion dollars (see p. 350). According to the *Bulletin de Statistique* the bill of France against Germany at the end of 1922 amounted to 97.533 billion francs whereof 56.852 billion were for expense of reconstruction in the devastated area. The total damage in the latter is estimated at 102 billion francs. According to the best authorities the prewar national income was about $37\frac{1}{2}$ billion gold francs, equivalent to about $7\frac{1}{2}$ billion dollars. If we assume a ratio of capital savings to income of 10 per cent, the amount of the prewar capital savings of France was about 3,750 million gold francs. The annuity necessary to amortize the external debt of France in 25 years at $4\frac{1}{4}$ per cent is 2,337 million gold francs or (disregarding the change in the value of gold) 62 per cent of the amount of the prewar capital savings.¹

Similar computations with respect to our important debtors indicate that the prewar capital savings exceeded by a substantial margin the amounts of the annuities required to amortize their present external debts and with such a consideration alone they might be expected to repay what they owe to the American people. This would be however an unwarranted assumption. In the first place any country must be

¹ H. A. E. Chandler in *Commerce Monthly*, January, 1923.

allowed to retain capital savings for reinvestment in plant to meet the needs of increasing population. There is no one of the principal European countries that is at the present time producing at the prewar rate. Apart from Great Britain, which is in a different position than the others by virtue of the large external investment it still retains, the ability of the European countries to pay their external debts appears to rest upon their willingness to work harder than previously and to economize in their internal affairs, among other things by the reduction of their armies and navies. Up to the present time the tendency has been in the direction of shortening hours of work rather than lengthening them, and this has been attended by diminished production which is exhibited in unmistakable ways.

Germany, up to April 30, 1922, according to the Reparations Committee, had turned over to the Allies 1,525,000,000 gold marks in cash; deliveries of goods, including coal and dyes, 1,811,000,000; submarine cables, valued at 49,000,000; real estate, Saar mines, governmental property in colonies and debts of German states assumed by various states inheriting German territories, 2,500,000,000; deliveries at end of Armistice, 1,186,000,000; total 7,071,000,000.

The cost of maintaining the armies of occupation from Nov. 11, 1918 to Apr. 30, 1921, was 3,142,518,000 gold marks and from May 1, 1921 to Apr. 30, 1922, it was 245,006,000 gold marks. The indemnity was fixed at 132,000,000,000 gold marks plus 4,000,000,000 representing the Allies' war loans to Belgium, which are payable by Germany under the schedule. It requires close study and a detailed knowledge of the com-

plicated history of the reparations matter to understand the figures that have been published by the Commission, and even so they are largely provisional. However the balance of debt due Apr. 30, 1922 is put provisionally by the Commission at 133,496,000,000 gold marks.

It appears therefore that Germany up to a year ago had made but little headway in payment of the bill levied against it. The cash and goods that have been turned over amounted to about \$800,000,000. German production having been subnormal there has been no exportable surplus and in fact the import and export statistics show that Germany has been buying more than she has been selling in order to live. Manifestly what has heretofore been paid in cash and goods is attributable only to deliveries out of the old gold resources, the proceeds of business financed outside of the country, the sale of foreign securities and the sale of German currency. Under the last head Germany has drawn huge sums from other countries, especially the United States.

Much has been made of the exportation of German capital in order to evade confiscation for indemnity purposes. That there has been such a policy is certain, but it is equally certain that the evasion can not have acquired any proportion looming big in the picture for no country can acquire the means to make any great transfer, which must assume the form of foreign investments or foreign credits, within a relatively brief period of time. As the result of centuries of saving Great Britain had acquired foreign investments to the amount of about four billion pounds previous to the war (see p. 45). Germany was estimated to have

surrendered 16 billion gold marks during the war (see p. 351). Rational estimates of the fugitive' German capital since the war range from three to five billion gold marks. We may reasonably think of about one billion dollars under this head.

It is manifestly futile to hope ever to gauge closely the amount of the foreign speculation in German currency. American bankers in Paris are reported to have estimated, about the beginning of September, 1922, that Americans lost at least two billion dollars, by the purchase of German marks before German financial inflation began. The American purchases were made largely when the mark was 6 c., and thereafter on a scale downward. British, French and Spanish speculators are said also to have lost heavily, the German profit on these transactions being estimated at four billion to five billion dollars in the aggregate. A Boston newspaper at the end of September, 1922, estimated the amount of the American speculation at \$960,000,000. This was denied by the Reichsbank which said that the American losses were less than that figure, but at the same time German experts estimated the total foreign losses in German currency as high as nine billion dollars. British, Spanish and French speculators were involved as well as American. Comptroller Crissinger, in a paper read before the Indiana Bankers Association, in September, 1922, put the American investment in foreign currencies at \$500,000,000, and in foreign money securities at \$620,000,000.

Out of these vague statements it may be deduced safely only this: Germany has realized largely, *i.e.*, in terms of billions of dollars, from the sale of her currency

to foreign speculators, including American, and the losses of the latter stood undoubtedly at a much higher figure at the middle of 1922 than at the middle of 1921 (see Chapter III). My own opinion is that the common estimate of an American speculation in German marks to the aggregate of one billion dollars up to the end of 1922 is not too high.

It is clear, anyhow, that Germany has been playing the part of the reckless bankrupt, yielding the remnants of her gold under duress, sacrificing her last tangible assets, except for what sharp financiers could convey and hide abroad, and taking advantage of the credulous of other countries when there was the chance, while at home her people were living beyond their real means. In short Germany has been doing everything possible save working to the limit, or anywhere near it. This view is confirmed by the statements in the impressive speech by Hugo Stinnes before the Economic and Financial Committee of the German Economic Council, Nov. 9, 1922.¹

The French in the meanwhile have been living in a fool's paradise, thinking to get out of the Germans the indemnity wherewith to repair the stupendous damage that they did, going ahead with the restoration on their own account and running into debt for the purpose, only to find that the chances for collecting from the Germans were becoming more and more remote. The French themselves working less than formerly, and their means having been impaired by the war, it is no cause for wonder that France faces fiscal bankruptcy. In France there has been but little unemployment, but French production appears to be below the prewar rate.

¹ Reported in *Deutsche Allgemeine Zeitung*, Nov. 12, 1922.

Russia, destroyed by an economic experiment, has been out of the picture. Likewise, Austria, pared down to a condition of impotence, and it too tainted with the poison of socialism. Only in Great Britain has there been evidence of a willingness to view things as they are, but Great Britain as a country that is mainly dependent upon its foreign trade has been directly and adversely affected by the situations in other countries. If the latter can not buy British manufactures it follows that British workmen must be idle.

We see therefore in the great industrial countries of Europe and America alike the same picture of diminished production, this differing only in intensity, being most strongly marked in Germany and Great Britain and least in the United States. This is much as would have been expected, of course. In all of the countries industries became disorganized during the war. In France there was grave destruction of industrial plant. In the countries of Europe that were in the war there was great loss of man power. It is probable, moreover, that some entire populations became debilitated, with impaired capacity to work and produce. All of these things have contributed to the result of diminished production as compared with the rate of 1913, but they are not in themselves an adequate explanation. Let us consider, therefore, what some foreign authorities offer, prefacing this with the explanation that a prime consequence of the social revolution immediately following the war was a general introduction of the eight-hour working day, in connection with which the labor office of the League of Nations has been active.

Dr. Carl Friedrich von Siemens, an industrial leader and a member of the German Economic Council,

declared in a statement in September, 1922, that German production had reached only 70 per cent of the prewar volume, and attributed the failure to (1) the introduction of the eight-hour day; (2) abatement in the intensity of labor as a result of the socialistic levelling; and (3) increase in unproductive labor as the result of the state's socialistic tendencies. Hugo Stinnes in a speech before the German Economic Council on Nov. 9, 1922, declared that Germany could recover only by discarding the eight-hour day and substituting 10 hours. In Germany, France, Belgium, and Sweden employers are urging the abolition of the eight-hour day on the ground that so short a time of daily work does not permit of adequate production being made, representing that experience has disproved the contention that the short day would result in greater intensity of work per hour than in the long day, the actual results having been just the opposite.

The evidence that has been presented is sufficient to reveal that there is indeed a common, underlying factor that is holding back the industrial countries of Europe and America and this is the common desire of the people in each of them to evade hard work; or better said, perhaps, to obtain their living and enjoy luxuries without earning them. Economists know that this is impossible. In none of the great industrial countries are the people working long enough, hard enough, or efficiently enough. This situation results from the impairment of morale which is perhaps the worst consequence of the war. Amid the exigencies of the war the several nations were constrained to mortgage their wealth and their future earning power, to inflate currencies and spread out systems of credit in

order to translate these mortgages into the obtaining of goods and the payment of the bills for them. During the period of demobilization large numbers of men had to be supported by governmental doles. Out of all this there grew in the minds of millions of men in all the countries the idea that money could be obtained from somewhere, that a living could be realized, and perhaps even luxuries, without working for them, whereas in fact they were simply drawing upon principal. In the several countries the manifestations are different, but the underlying evil is the same and is common to all of them.

As I pointed out in previous chapters of this book the only possible offset is improvement in engineering, invention, organization and management that will enable more production to be made with less work. It is to such improvement that is ascribable the great progress in civilization from the time of the invention of the steam engine up to the outbreak of the Great War. But since the end of the war, although there has been indeed material improvement in single industries they play only a small part in the great picture, and looking at the economic situation as a whole it is clear that there has been no offsetting improvement, for the production statistics do not show it, but rather do they show the opposite. Underlying all of the great economic and political questions of the time is the need for recognition that the war caused colossal losses that can not be made good by mere regrets, that the war did not create any ability for populations to enjoy previously unknown luxuries without earning them, that as the possibility of squandering either time or money draws near to its close no

panacea is to be found in socialism or governmental intervention in industries and that the only solution is hard work and thrift no matter how much those ideas be disliked. The statesmen who have guided affairs have either been ignorant of these homely economic truths, or they have not ventured to proclaim them. They have rather led the people on with false hopes or have deferred to purely opportunist policies and have led the people on to the inevitable outcome of "Root hog, or die." The truth is clearly perceived and expounded by important economists.

In an address to the American Manufacturers Export Association in New York, Oct. 25, 1922, Sir George Paish said:

The men responsible for national and international policy after four years of opportunity have not only failed to find a solution for the economic and financial problems which the war created, but have rendered them, and are still rendering them, more difficult to solve.

Prior to the war not only were all the nations solvent, but year by year they were increasing in well being. The densely peopled nations of Europe were able to sell sufficient manufactured goods and to render service to the world in general to enable them to supplement their own supplies by large purchases of food and raw materials from other nations, while the countries with power to produce food and raw materials beyond their own needs were able to sell their surpluses in exchange for the manufactured goods and services they required in return.

The statesmen of all nations are indeed engaged in a common effort to prevent the nations from meeting their obligations to each other and thus reducing the whole world to bankruptcy. Already the policy of the statesmen of Europe is fast bringing the strongest nations of Europe to ruin, and before long the statesmen of the other nations of the world, if permitted to do so, will bring their countries into a similar condition.

It is therefore of the greatest possible moment that the business men and peoples of all nations should seek to understand and to realize the disastrous consequences that must ensue from the present policies of those responsible for national and international affairs and should insist upon such change of policy that will avert the catastrophe toward which the entire world is now moving with ever increasing rapidity.

Professor E. R. A. Seligman in the *New York Times* of Oct. 22, 1922, summarized as follows:

In the present situation in Europe, there is no surplus of social income, and there is not apt to be for a long time. People are prone to forget the gigantic ravages of war; never before in history has there been such gigantic waste of man power and of capital. Even with the slight improvement that is visible now, Europe has on the whole been steadily going down hill. Even in Great Britain the most competent thinkers maintain that the country is living on its capital, and is not forging ahead. Certainly the Continent of Europe as a whole is, economically speaking, bankrupt, and it will be for a long time before the social income and outgo balance each other. And, in the second place, even when there is again a social surplus, the possibility of putting this surplus into exports will depend on unpredictable competitive conditions.

It is clear from this fundamental consideration that many of the major economic questions are not immediately governing; which is not in any way to disparage their importance. Obviously, however, the concentration of the great stock of gold in the United States is playing no present part in affairs, for it is immobilized and is neither producing inflation nor doing anything except create a very high ratio of banking reserve.¹ The indebtedness of foreign governments is playing but a slight part in commerce or finance, inasmuch as Great Britain is the only debtor that has begun even to pay interest.

The things that are playing controlling parts are the continued extravagance of nations and peoples, as evinced by their unbalanced budgets, which they try to make good by printing currency; the maladjustment of trade, resulting from the disturbance of the world's commercial equilibrium, which some countries, especially the United States, aim short-sightedly to perpetuate by means of prohibitive tariffs, and other restrictive laws; and the unwillingness of people to

¹ "The excess gold is largely a dead asset and one of the urgent problems we have to face is that of getting it back to Europe and other parts of the world where it is more needed." Dr. B. M. Anderson, Jr.

recognize that they have become poor and must work even harder than formerly. The masses of people have no real knowledge of the world's present position, and not the slightest inkling of what the next 10 years has in store for them. There are no leaders to whom they will listen. The ignorance and prejudice of the masses prevails. Therein we may see the probability of what Ferrero has indicated, *viz.*, that the most terrifying loss from the war was the loss of the principle of authority. Democracies acting without the authoritative guidance of intelligence know not what they do. Economically the people of the civilized countries of the world in quarrelling about the division of the produce of industry forget that the prime essential is to produce enough. The people of the United States are the victims of this economic blindness, just as are the people of Europe, but they have not suffered so severely from the consequences owing to the greater wealth of their country, the smaller loss by the war and the less spread of socialism.

CHAPTER XVI

THE RESPONSIBILITY OF MANAGEMENT

The sole purpose in the accumulation of wealth by the people of any nation is to improve their scale of living. Striving and saving are pointed only toward that end. Indeed, there can reasonably be no other end. There is nothing else for which it is worth while to work. The building of pyramids, as in Egypt of old, is not worth while. The demand of labor for advances in the scale of living are therefore in no way to be deprecated, but rather are they to be warmly commended. The sole subject for criticism is the pursuance by labor of policies that counteract and defeat not only its own purpose but also that of everybody else.

In any nation there will always be differences in the scale of living among classes of people, which probably are not so great as is commonly supposed. Among nations there will always be differences in the scale of living of peoples as a whole, according to their collective wealth. Thus, the general scale of living in the United States was higher than that of pre-war Russia, while the people of Russia were able to live better than the untold millions of China. The scale of living in these three great countries, each of them rich in national resources, was in direct proportion to their accumulated wealth.

The object of this book has been to present facts, and by so doing to dispel illusions. If facts are dis-

agreeable, there is no use in shutting our eyes to them, even if they be of a nature to produce what is commonly called pessimism. There are some students of affairs who view the catastrophe of the war with such grave eyes as to foresee the possibility of the world relapsing to the semi-barbarism of the third and fourth centuries. That is pessimism indeed. Others, including myself, thoroughly appreciative of the gravity of the consequences of the war and unable to perceive how they will be quickly and easily overcome, foresee a temporary set-back in the scale of living by all people, but anticipate a subsequent recovery and a continuance of the improvement, perhaps more rapidly and at a greater rate than ever before. This is the soundest optimism. We shall realize our hopes the sooner the more clear is the understanding of the real uplifting factors. Inevitably there will be many adverse conditions to contend against.

The greatest of the adverse conditions is ignorance. The fundamental thing in the promotion of human welfare is therefore the improvement of knowledge. If the masses of the people of the civilized world could learn the fundamental principles of economics our troubles would be quickly ameliorated and nations would rise rapidly to higher scales of living than has yet been comprised within the dreams of anybody. Unfortunately this is not a consummation to be expected soon. After nearly 100 years the fallacy that it is a good thing to break glass for the sake of making work for the glaziers still persists, and undoubtedly it will endure for many generations yet. We can understand such human obstacles when we read that a statistical analysis of 94,000 cases out of about 2,000,000 of the

youth of the country entering military service during the war, who were examined psychologically, showed that 86 per cent had a mentality rated as less than that of 16 years of age; when we read authentic reports that large numbers of the boys and girls who have passed through the public schools are unable even to read or write, having acquired the ability but lost it through disuse; when we hear that the leader of a religious colony is teaching his followers that the earth is flat, that the sun is a sort of a small lamp circling around the earth only about 32 miles away, and that there is no such thing as the law of gravitation. The eugenists at their recent conference in New York told us that the occurrence of genius during the course of history has been in only one person out of 6,000,000, where this one person has been of the order of ability represented by Shakespeare, Sir Isaac Newton or Cecil Rhodes. The next in order of importance are the people of great skill, intelligence and courage, who are leaders, but not geniuses. The eugenists call them the "who's who" people and estimate them as 1 to every 6,000 population.¹ If more people were able to think and understand, the progress toward increased comfort and happiness of the human race would be far more rapid, but unfortunately nature has not caused it to be so.

¹ Annul the work of a few hundreds—I might almost say scores—of men, and on what plane of civilization should we be? We should not have advanced beyond the medieval stage without printing, chemistry, steam, electricity, or surgery worthy the name. These things are the contributions of a few excessively rare minds. Galton reckoned those to whom "illustrious" might be applied as but one in a million. To improve by subordinate invention, to discover details missed, even to apply knowledge never before applied, all these things need genius in some degree, and are far beyond the powers of the average man of our race; but the true pioneer, the man whose penetration creates a new world, as did that of Newton and Pasteur, is inconceivably rare. (Bateson, on "Heredity," 1914.)

Labor will not even do for itself what it might. It is not to be expected to do what it cannot. The burden rests consequently upon the managerial class. That class must therefore realize its responsibility more fully than heretofore.

There has been a lot of loose talk about the "autocracy of capital" coming to an end and "industrial democracy" coming in. What is, or ever was, the "autocracy of capital?" It sounds formidable but it does not mean anything. Substitute "the authority of the directing minds" and we shall come nearer to the truth. Diminish that authority in any way and production also will diminish and the men and women who labor will not be thankful. No large share of any new wealth is to go to them unless they, themselves, make it larger by their own efforts, or unless it be made larger by greater efforts of the directing minds whose authority it is sought to curtail.

If industrial democracy means, merely, the improvement of working conditions, and listening for advice about it from the men and women who work, by all means let us have it; but who has that simple conception of the meaning of the phrase? Employers ought to provide proper working places, they ought to make them safe and light and sanitary for the sound reason that, thereby, they will increase efficiency. For the same reason they ought to provide compensation for sickness and accidents, old-age pensions, and in general should take care of their people. But the more enlightened employers already do this to a more or less degree, perhaps not enough, but nevertheless progress in this direction has been steady. All of this falls, however, under the head of industrial coöperation, which ought

to be urged in every possible direction that is economically sound. The jargon "industrial democracy" is simply an expression of the discredited theory of Karl Marx, now rejected by many socialists themselves, who recognize in the words of Mallock, that "in any complex system of industry, such as that which prevails today, the efficiency of the workers as a whole is the average efficiencies of the many multiplied by the efficiencies of the few," the few being "the natural monopolists of ability," whose function is to issue orders, while that of the many is to execute them with strict obedience. Mallock summarizes it all in his concluding words of "The Limits of Pure Democracy," to wit: In any great and civilized State *Democracy only knows itself through the coöperation of oligarchy;*" and, "the many can prosper only through the participation in benefits which, in the way alike of material comfort, opportunity, culture and social freedom, would be possible for no one unless the many submitted themselves to the influence or authority of the super-capable few."

Yet, labor has just grievances, and it is the duty of the managerial classes to relieve them. With respect to some of these labor is the victim of circumstances and injustices that are quite beyond its control. The most serious of these is unemployment. Unemployment is a dreadful thing. Men who are willing to work ought to be able to work. There are some occupations that are necessarily seasonal, in which the wage earner is expected to safeguard himself. There are others in which idleness results from industrial causes as to which the laborer is helpless, in some cases from causes that are beyond his employer's

control but in many cases not so. Some of our industries function badly, *e.g.*, the mining of bituminous coal, the building trade and not a few branches of manufacturing, although on the whole manufacturing in the United States shows no great variation in the number of persons employed month by month.

According to the statistics of the U. S. Geological Survey, coal miners work commonly only from 200 to 235 days out of the 305 to 310 possible in the year. Manifestly coal mining is a badly organized and badly functioning industry. This reflects evils that should be corrected in some way, and probably could be corrected by leaders capable of thinking in terms of the industry as a whole. The coal miners themselves are the victims of bad leadership. Nothing that they can do by regulation of hours or rates of wages will improve their situation. The trouble is in the high command, not in the lower ranks.

According to the report of the Committee on the Elimination of Waste in Industry of the Federated American Engineering Societies, July 1, 1921, the workers engaged in the manufacture of clothing are occupied for only 69 per cent of the year (300 days); the average shoemaker only about 65 per cent. The workers in these industries are the victims of seasonal demand, and to some extent of the vagaries of fashion.

According to the same authority the building trade workman is employed only about 190 days in the year, or approximately 63 per cent of his possible time. Without any doubt there could be improved organization in building, but at the best a large proportion of these workers are subject to the conditions of nature. Outside construction is obviously best carried on during

the spring, summer and autumn and is subject to interruptions by bad weather.

In general, however, our industries do not function so badly as those that have been mentioned. According to the census of manufactures the average number of wage-earners in the factories in 1914 was 7,036,337. The maximum number in any month was 7,242,752 and the minimum 6,640,284. The minimum was 91.7 per cent of the maximum. The average was about 97 per cent. The figures for 1914 show a high degree of uniformity of employment. However, the maximum does not necessarily represent the total number of factory workers. At any time there is a certain number who are idle from choice, from physical incapacity, or from inability to obtain work in their own trade and habitat. The amount of this surplus, which, of course, must derive support from its several industries, is necessarily conjectural. Some data on the subject have been given in Chapter II.

In some industries full time employment is generally possible. That is the case in transportation. The metal miners of the country commonly work from 300 to 310 days per annum, metal mining being a well organized and excellently functioning industry.

The data that I have summarized above represent substantially the conditions of normal times. All industries are subject to periods of depression, when there may be necessarily a complete suspension of operations with immense hardship to the workers, who generally have saved but little money wherewith to tide themselves over such periods. Until we come to the millenium there will probably be always cycles in business, with alternations of feverish activity and

dreary depression, but without any doubt the intensity on the one hand, and the severity on the other hand, of such conditions can be considerably minimized, and that is the great task that the management of industry must master. The mastery of this problem will be acquired through increasing the transparency of industry, and that is the greatest development in practical economics that lies ahead of us.

The foundation of successful marketing is knowledge of conditions, both as to consumption and production. If everybody could see clearly those conditions at all times the markets would be comparatively stable, just as are those for aluminum and nickel, which are controlled on the producing side by monopolies. I do not intend to argue in support of the monopoly idea; my argument will be quite the reverse; but it is clear that the director of a monopoly, having full information respecting conditions of production and good information as to consumption, can eliminate minor fluctuations in price and needs conform only to broad swings of economic conditions. I do not think that monopoly, not even beneficent monopoly, is a good thing, but certainly it arrives at the result of relatively stable prices, and the nearer the same result can be attained under conditions of free competition the better it is for everybody except speculators. Manifestly the only means of accomplishing anything of that sort is knowledge, and fundamentally statistical knowledge. It can be shown that in industries that have acquired such knowledge the fluctuation in their markets have moderated, but in no case has the statistical service ever yet been as it ought to be and will be.

I need scarcely point out the incalculable benefit both to capital and labor if it were possible to determine the state of economic conditions more promptly and more accurately than at present, enabling both producers and consumers to cut their cloth accordingly, and incidentally eliminating the speculator, who in our present organization is simply a person more gifted for seeing in the dark than are most. There would be less waste of capital in overbuilding means of production, there would be fewer periods of overstocked markets, and the lot of the workingman, assured of more regular employment, would be infinitely better. Of course, the last is just one of the things that socialists talk about effecting, and that is one of the expressions of a justifiable discontent, but the cure for it is not state control of industry, nor industrial democracy, but merely industrial coöperation in a sound and simple manner.

Such work as I have outlined will tend to produce what George E. Roberts has very aptly characterized as equilibrium in industry."¹ This thought has been grasped especially during the last three years by the leaders of American industries, and during that period there has been instituted new enterprise in the field of industrial statistics as never before. I think that the inspiration for this was found during the war, and I believe that this is the only great economic good that is going to be derived from the war. I say the "only" good, but in fact it is superlative. In the end it may easily prove to be of inestimable value. However, it will necessarily be a fairly

¹ See his address as President of the American Statistical Association, Dec. 31, 1921.

long time before the world can expect to reap general benefit from it.

Thinking constructively, the conception of transparency in industry leading to equilibrium in industry is economically basic. Next in order of importance I put industrial organization. Economic improvement may be defined as the avoidance of waste. I can think of no better definition. I do not mean merely the elimination of obvious wastes, such as were features of many gospels that were usefully preached during the war, but rather the major things that we do not yet regard as wastes, or if so, do not yet know how to eliminate them. The diversion of unnecessary men, the prevention of misdirected effort, the increase in the foot-pounds of the man-day of work are all forms of cutting out waste. If the railways of the United States could by virtue of improvements in organization, invention of automatic devices, etc., be operated with only one million men instead of two million there would manifestly be an enormous saving of labor, which could be diverted to the production of something else. The avoidance of waste is therefore fundamentally the avoidance of the waste of labor.

The improvement of efficiency in production is neither simple nor easy. A basic need is a good system of uniform accounting, for until that is possessed nobody can know just how the component parts of an industry stand, and what ought to be done to improve things generally. No man can know whether his business is being conducted efficiently or not unless he knows not only his own costs, but also has some standard with which to compare them. By such comparison he may ascertain that his costs are too high,

and then upon analysis he may find that he is employing a wasteful type of apparatus which it would be economical to discard, even at the expense of a new one of greater first cost.

The strong must help the weak, and in most cases it is the weak who know the least about their own business. Moreover, I conceive that it is in the interest of the strong to help the weak, and certainly it is never to their loss. No one concern in any business can be very prosperous unless its industry as a whole is prosperous. Let us suppose, for example, that in Detroit, which has become a great center for the manufacture of automobiles, there were one or two concerns, which by reason of excellence in design and construction of their cars, good business management, etc., stood head and shoulders above all the rest as commercial successes. The fact that Detroit had become such a center created a working population skilled in the art and inspired many kinds of accessory and elemental manufactures, even to the rolling of sheet copper and the production of pig iron. Suppose now that a general blight overtook automobile manufacturing, compelling many makers to suspend and consequentially many of the industries that supplied them with necessary things; but that the one or two conspicuous concerns escaped the blight. Certainly they would not escape the consequences, if the local rolling mills and manufacturers of rough parts ceased production and if the population of skilled labor dispersed.

Labor has a direct interest in this kind of industrial coöperation, just as it has in the statistical service. Obviously everything that increases the produce of the

mines and factories and reduces the ranks of the no-profit class of employers, is directly in the interest of labor. Although it would diminish the profits of some very successful employers at some times, they too would gain on the whole, for they would utilize their plants more fully and more steadily and while making smaller profits per unit of production would make more in the aggregate. In brief this is simply another expression of the gospel that it is to the interest of everybody to produce the most goods that can be produced. It is not money, or money-wages, that people need, although unfortunately that is what most of them erroneously think they want; but what they really need is the goods for which money can be exchanged.

What I have already outlined with respect to industrial organization is the major conception. There is also a minor conception, which in spite of my characterization is nevertheless of enormous importance. It is in fact that which offers the most immediate and practicable approach with the promise of early results. It is this that has come within the scope of the studies of the Committee on Elimination of Waste in Industries of the Federated American Engineering Societies. This committee attributes the main waste in industry to:

1. Low production caused by faulty management of materials, plant, equipment and men.
2. Interrupted production, resulting from idle men, idle materials, idle plants, idle equipment.
3. Restricted production intentionally caused by owners, management or labor.
4. Lost production caused by ill health, physical defects and industrial accidents.

The Committee found serious drains on production by faulty material control, by faulty design control, by faulty production control, by faulty labor control, and by lack of research. These evils may be summarized as coming partly under the head of lack of industrial organization and partly under the head of bad management. There is no doubt that our industries that are conducted by individuals and on a small scale are frequently very badly managed. The engineering committee found the worst faults in such industries as clothing manufacture, boot and shoe manufacture and printing that are largely run on a small scale by individuals and small concerns. While the committee did not touch upon this point, I do not think that the big corporations are generally open to the charge of bad management and inefficiency. But even within the scope of its survey the committee foresaw the possibility of effecting economies in production that in the aggregate would come to billions per annum.

There are other major matters demanding the attention of engineers, economists, managers and statesmen. During the war we had prominently in mind the curtailment, and even the suppression of unnecessary industries. That is really just as important in peaceful time as it is in war time. For the sake of economy it is one of the first essentials that every country rid itself of its useless industries.

If anybody is trying to raise bananas in Montana (I suppose it might be done under glass) he is not adding anything to the wealth of the country. He is subtracting from it. Instead of encouraging him, he ought to be suppressed as a national waster. However, I will give a less extravagant example of my meaning. We

have in the United States a considerable quicksilver industry, but owing to the poverty of our ores the metal is costly to produce. We can buy quicksilver much more cheaply from Spain where there are rich ores. Our domestic industry can be kept alive only by a high protective tariff. That would be a very costly tax upon all the people, a national loss of money, in order to afford a precarious existence to a few people who would better be doing something else. There may be the suggestion of the necessity for military preparedness. Indeed, quicksilver is a very important thing in munitioning. During the war our munitions requirements took a large part of the domestic output, but a little figuring will show that it would be far cheaper for our government to buy from abroad the supply for several years, and pay storage and interest charges than to keep our own mines going.

There are not a few industries of this class in the United States. I do not deprecate the principle of a protective tariff, or even of a bounty, in all cases. A country may have national resources, or opportunities, for the development of which a temporary stimulus may be helpful. In such a way was the manufacture of tin-plate in the United States established as a great industry. But the maintenance of production out of poor, hopeless natural resources by means of donations at the expense of all the people is an economic crime. Therefore, one of the principles of industrial organization should be the elimination of useless industries. It is a great function of professional societies to study and determine what are useless industries. Governments, subject as they are to political influences, can not in time of peace, whatever they may have done

in time of war, form so impartial an opinion. The suppression of non-essential industries by the war boards was generally of useful industries for the sake of those that under peaceful conditions would be useless. Probably there are rather few absolutely useless industries. If the number of them were large a country would soon become bankrupt. Most industries are useful and profitable to a more or less degree, and assuming that national resources afford the proper foundation their economic position is probably in proportion to the coöperation that exists in them.

Greater economy in distribution of consumption goods, *i.e.*, transferral of such goods from the railway terminals to the distributors, and the final merchandizing thereof at retail, is a major matter awaiting attention. At present the cost of moving goods from the railway terminals to the distributing warehouses and stores is very great in proportion to the total cost of carriage. The automobile truck is affording some improvement in this field, in which it finds its especially useful function rather than in long distance transportation. It is possible that a system for the utilization of our existing surface tramways at night may be developed that will afford economy in this branch of transportation. In the field of retail merchandizing the department stores, chain stores and mail order houses are offering improved service by a process of natural development that may be expected to extend very much further. This is something to be encouraged, not to be deprecated. If it spells eventually the extinction of the small tradesman, his demise will be owing to his own inefficiency and will be for the general good. When the small tradesman asks \$1 for an

article that the chain store sells for 85 cts., which is a common occurrence, the difference represents the inefficiency of the small tradesman. If the public consents to pay his price it is owing to its own carelessness and laziness, and it has no ground for complaint against anybody on the score of "profiteering."

The reduction of wastes in the generation of power and improvements in the distribution of power through greater electrification offers a great field for economy. All these things are going to be done, and in doing them the engineers of the country will play a very great part. When progress in those directions comes into good motion we shall be really on the way toward creating a higher scale of living for all the people. This, then, is the great promise for the future.

Everything that I have outlined in the foregoing is to be thrust upon the shoulders of management. Everybody will be bound to agree with Professor Commons in the recognition that business men are the only people in a position and with the ability to accomplish such things. Labor could do something stupendous in helping, if it but knew its own interest, but this is not to be expected so long as labor is the victim of ancient economic fallacies and refuses to learn, or is not sufficiently intelligent to learn. The most that will be asked of labor is not to stand in the way, in its own way.

There is, however, one thing that labor can reasonably be expected to learn, for it is concrete, not abstract, and may be visualized. This is that unionization is directed in ways that are contrary to the interests of general welfare, including its own. Let me quote Judge Gary on this subject, in his statement of the principles and policies of the United States Steel

Corporation at the annual meeting of the stockholders of that company on Apr. 18, 1921, as follows:

"We do not combat, though we do not contract or deal with, labor unions as such. They may have been justified in the long past, for the workmen were not always treated justly; and because of their lack of experience or otherwise they were unable to protect themselves; and therefore needed the assistance of outsiders in order to secure their rights.

"But whatever may have been the conditions of employment in the long past, and whatever may have been the results of unionism, concerning which there is at least much uncertainty, there is at present, in the opinion of the large majority of both employers and employees, no necessity for labor unions; and no benefit or advantage through them will accrue to anyone except the union labor leaders. Our opinion is that the existence and conduct of labor unions, in this country at least, are inimical to the best interests of the employees, the employers and the general public. The natural and certain effects of labor unionism are expressed by three words; Inefficiency, high costs."

It may be many years before this be appreciated. In the meanwhile it may be reasonably asked of the politicians that they cease their cajolery of the labor unions and enact legislation applying equally to all economic organizations. Both organized capital and organized labor should be placed under the same laws. Each should be entitled to the same protection and be subject to the same restrictions and regulations. The restrictions should be particularly severe in all cases where either organized capital or organized labor controls something indispensable for even a short

time to the welfare and life of the people, such as the means of transportation and the supply of fuel.

I am not herein expressing anything but the utmost sympathy for labor and I have full recognition of the hardship that labor frequently experiences as a consequence of bad management by those who are responsible for the conduct of industry, as for example in the production of bituminous coal and in other industries that are chronically over-built. Yet, even in this fundamental matter of over-capitalization labor can not disclaim all responsibility. In boot and shoe manufacturing, for instance, the exaction of labor unions in some of the old manufacturing centers have *ipso facto* inspired the development of the industry in new regions with the result of unnecessary increase in manufacturing equipment, capitalization, etc., and the enlargement of the entire personnel of the industry with the consequence that full-time work cannot be enjoyed by everybody. Unionization of labor has done nothing toward correcting this basic evil, but on the contrary has had the tendency to aggravate it, and even to produce it.

I believe that the net result of the labor unions has been to reduce the efficiency of labor. Unionized labor is opposed to piece work and is in favor of limitation of output, which is gaged according to the ability of the slowest mover. The governing idea is not to perform work, but rather to make jobs and sell time. It is difficult to measure the impairment in the efficiency of labor, for engineers by the substitution of machinery for men and managers by the invention of improved methods are constantly creating off-setting conditions, and up to the entry of the United States

into the war were keeping ahead. We obtain the best index respecting this subject from the major industries that we have not been able to mechanicalize. Brick laying is such an industry. When we turn to it, we find indisputable evidence of impairment in efficiency.

The broad economic consequences of labor unionism have thus been first the impairment of labor efficiency and second either the over-manning of an industry, *e.g.*, the railways under Government administration, or else the under-manning by limitation of apprentices, *e.g.*, in the printing industry. Whichever be the policy the underlying conception is the aggrandizement of a single group of workers, which is careless of the interest of others, and even of the welfare of sub-groups among itself.¹

Examination of the economic and statistical data shows that in the main such aggrandizement can be only at the expense of other groups of workers. The national income and the portion thereof that accrues to property and management are insufficient to permit the result to be otherwise. The town workers may profit at the expense of the agricultural workers. Among the town workers certain groups, *e.g.*, the railway men, coal miners, and builders may profit at the expense of the factory workers and general laborers. It is possible that the workers who are in full control of an essential product, anthracite coal for example, may maintain their position for a relatively long time, inasmuch as consumers will be compelled to have the necessity at any price. Inevitably, the workers in

¹ The recent revelations of the attitude and practices of building mechanics in New York and Chicago have been nothing less than dreadful, both economically and socially.

other industries must suffer, for the family with \$1,400 per annum to spend if compelled to pay \$200 thereof for coal, instead of \$100, will obviously have to reduce its outlay for other things by \$100. Such a position can not be maintained indefinitely, however, for the monopolistic workers maintaining high wages while all other wages have fallen are bound to become the target of competition. Even their unionization will protect them but temporarily. In the end the union itself will be broken down. Thus labor unions by such exactions sow the seeds of their own disruption.

CHAPTER XVII

FORECASTS

This work has been essentially a presentation of facts, together with considerable comments upon them and interpretation of their meaning. In the past statistical work has been mainly the mere recording of facts, and to a very large extent statistics have been nothing more than compilations of figures that were not understood by the compilers themselves. The entry of professional men into this field with the idea that statistics are of the same nature as the other facts that they are professionally required to determine and analyze is relatively new. Dr. George Otis Smith, Director of the U. S. Geological Survey has aptly outlined the nature of modern statistical methods in the following words:

“The scientific bureau is a fact finder; if successful, it finds facts, it works out their interpretation. Many of the facts thus gathered can be stated quantitatively as well as qualitatively; that is, numerals as well as words can be used in describing the results of the investigation. Whether facts are to be expressed in numerals or in words, they are best collected at first hand. The ideal collector of facts is the field man who has known his subject for years, and that subject is not merely statistics but the reality behind the words and figures. The investigator who expresses some or all of his facts in tables of figures is essentially an

engineer, or a chemist, or a geologist; not necessarily a statistician. It is the special training of the fact collector in this or that science that makes him able to give the highest value to his facts, for while the way in which he presents his facts may bring out that value and add to their practical usefulness, neither words nor numerals can create that value. The issue of centralized statistics versus specialized service is likely to become the difference between a mechanical assembling of figures, without interpretation, by office compilers who know little of their subject at first hand, and a continued study in which numerical statements of facts are interpreted by specialists who have lived with their subjects for years. Statistics of themselves are only an adding-machine product, no more to be set up and worshipped than the verbal output of the typewriter. It is the man behind the adding machine and its operator who counts, and that man is likely to be a fact finder rather than a statistician. In investigative effort of this type statistics are merely tools."

We are beginning thus to acquire masses of figures that mean something. The next step naturally is to apply the information to the forecasting of the future. The insurance actuaries have shown us the validity of that thought. Industrial statisticians and economists are now courageously entering the new field of forecasting statistics. This is pioneering in the great conception of increasing the transparency in industry, development of which is the greatest responsibility of management. I may, therefore, be so bold as to outline some of the things which the studies of this work indicate to me as likely to happen in the future.

Europe has become so desperately poor that its

people will be compelled to work longer hours than before the war in order to enjoy even an inferior scale of living. Efforts will be made both by the Europeans and by ourselves to inspire increased desires among the undeveloped peoples of the world, for the sake of enlarging the markets for goods to be manufactured and sold to them. Those markets however are going to fall to the countries that manufacture and sell cheapest, which will be those whose people work the hardest and the most intelligently. For a while the United States is likely to be not included among the active competitors except in some specialties. In the main we shall benefit through such increased business only out of the demands for some of our raw materials that other manufacturing countries make of us. In the meanwhile we shall be sitting on a mountain of gold, hugging the delusion that we are rich, but all the time witnessing a declining business, with many of our people idle. We shall be limited largely to what we can do among ourselves, and that will not be enough. However, we shall have a period of domestic activity in making good our housing and railway deficiencies when the readjustment in wages has gone far enough to render that broadly practicable.

In the meanwhile we shall gradually find that our fancied prosperity during the war and in 1919-1920 was illusory, and that when deflation is completed and our ability to live on our principal has ceased, our national income will be insufficient to furnish us with all of the things that we have been having and enjoying, and would like to continue to have. Bluntly speaking, the national income will be insufficient to afford a surplus over national living expenses to enable us to

have both houses and automobiles. In that expression I am using the term "houses" to exemplify all essentials and "automobiles" to typify all luxuries. Nor can the expenses of government be allowed to continue at the existing rate. For the same reason there ought to be no bonus to the soldiers, but ideas of political expediency will probably lead Congress to grant it.

It goes almost without saying that neither can the nationals of Europe nor the United States continue to provide themselves with armaments as heretofore. The countries of the continent of Europe that were in the war are practically bankrupt. Even the United States although in a very comfortable position—a marvellous position as compared with the countries of Europe—will not, nevertheless, be able to afford an immensely costly army and navy. Regardless, of what may be agreed upon among the powers in their pending conference, sooner or later disarmament will become an economic necessity.

Up to the present time, the decline in commodity prices in the United States has been confined to raw materials. According to the President's Conference on Unemployment in October, 1921, taking 100 for 1913 as a basic index number, the price for cotton to the producer had declined to 105, of wool to 92, of lumber to 128, of pig iron to 128, of copper to 75, of lead to 100, and of zinc to 80. On the other hand common brick was at 199, bituminous coal at 186 and anthracite coal at 198. Freight rates ranged from 187 to 209. Wholesale and retail prices ranged all the way from 150 to 200. Day labor in the steel industry was down to 150, and in the building industry down to 140, but the union wage scales in almost all

industries—mining, manufacturing, building and transportation—were around 200.

The farmers of the country who derive their income from the sale of their produce rather than from wages have already experienced drastic readjustment, substantially to pre-war levels. Hired labor has not yet had much readjustment in wage scales, its opposition to reduction in rates having resulted in extensive unemployment, owing to the inability of industries to pay the old scales. This spells, of course, curtailment of the national income. In a former paper I indicated the probability of just such a situation and pointed out how it would lead to dissension between the agricultural workers and the town workers, which has already happened; and how furthermore it would produce a rift between organized and unorganized labor; and how eventually it would lead to a disruption of the general federations of labor unions. I may go even further and foresee the waxing of the general principle of the open shop along with the waning of labor unionism.

Labor is not going to continue to hold the mastery of the situation, in spite of declarations to that effect, but is going to lose most, if not all, of what it gained during the war and may fall to a lower scale of living than before the war. It may be that labor will lose even the 8 hour day under the economic compulsion of working more in order to meet the competition of pauperized Europe. There has never been any study of the subject of the eight hour day *en masse*. Without any doubt there are some kinds of work in which a man can accomplish as much in eight hours of intense application as in 10 hours of ordinary, but there are other kinds

of work whereof that is not true. In a broad view of the question it was doubtful whether even before the war the American people as a whole could earn their living according to the scale they had reached by working only eight hours per day. Anyhow, they did not try to do so, the 8-hour day being enjoyed by relatively few workers.

While labor has been able during the last few years to preëempt an increasing share for itself of the produce of industry, obtaining as high as 80 per cent of the whole, speaking only of the non-agricultural workers, its proportion will probably fall back to the former rate of division, for in no other way can the savings be made that are necessary to provide the houses, railway facilities and other essential things that the increasing population needs for its comfort.

The socialistic trend of legislation, exhibited in methods of taxation that are designed to take mainly from the rich and in measures that are aimed toward increasing government control of industry will cease, for such a reversal of policy will be necessary to restore the nation's production and thrift. We may foresee the abolition of the U. S. Labor Board and the Federal Trade Commission and the repeal of the Adamson and Esch-Townsend acts that are directed especially against the railways. We may even foresee a substantial modification of the Sherman law, for the general over-equipment and over-building of our mining and manufacturing capacity are going to lead up to that.

There is in prospect an era of falling prices which will not end until the prices for manufactured goods, both at wholesale and retail, the cost of railway transportation, etc., have come down to figures correspond-

ing with those for the raw materials. At the end of the decline we may expect to see most prices, both for commodities and labor, at or near the pre-war levels. There will be exceptions attributable to changes in conditions of demand and supply. Thus, rubber may be expected to run considerably below pre-war levels owing to increased supply, while on the other hand platinum will be higher owing to greater scarcity. Similar things may be expected in labor. The wages for farriers will no doubt continue very high for a long time, for with the rise of the automobile such artisans have largely disappeared. However, such alterations will be only sporadic. There may be differences between commodities and labor in the ultimate results, for while platinum, for example, may continue high forever, owing to the failure of nature to create a bountiful supply, the wages for farriers can not keep high very long without attracting workmen back to that art with the result of declining wages by virtue of competition.

In short, 26,500,000 families in the United States find themselves at the present time in the possession of wealth to an average amount of about \$10,300¹ per family, compared with about \$10,550 in 1916. They have in prospect an average income of not to exceed \$1,400 per annum and have let themselves be led into the habit of spending about 93 per cent of it for immediate consumption, leaving an insufficient surplus to provide for the houses and other accommodations that will be needed by their children; whereas in 1913

¹ This is materially lower than the average value of the farms of the United States, which the Census gives as \$12,085 on Jan. 1, 1920. See p. 176. The farmers have no ground for complaint on the subject of inequitable division of wealth.

they had an income of about \$1,400 per annum, whereof experience had taught that not more than 85 per cent should be allowed for annual living expenses. An individual family finding itself in such a position as the present one would make up its collective mind that it had to cut down expenses anyhow and increase its income if it could. That is just what the people as a whole are constrained to do. There is no use in saying that things ought not to be so. The fact is that they are. Moreover there is a strong probability that they are going to be worse before they become better. Those theorists who are foreseeing an early revival on the theory of cycles may find that they have been mistaken. What we have been, and are, experiencing is not a cycle, but rather a cyclone.

Many people will have different views. There will be some who see in the industrial depression of 1920 nothing but the bottom of an ordinary cycle in business. There will be some who will expect an upward movement in prices, both on the theory of cycles and the theory of inflation, which latter expresses itself in the idea of a permanently higher level of prices. All that is a reflection of the quantitative theory of money. With nearly all of the world's mobile gold in our possession we ought to have high prices according to that theory. But how we can have high prices with Europe underselling us in competitive markets, for the reason that its people are compelled to work harder, is beyond comprehension. However, much time will elapse before such ideas are dispelled. While we are waiting for that troubles will increase and we shall resort to various expedients with the idea of ameliorating them, but too often they will be of the nature of quack remedies.

These may introduce some real dangers, such as those of agrarian legislation, political vacillations with the idea of further cajoling the labor unions, and so forth.

In the meanwhile the brains of our industry will not be idle. Management will recognize and accept its full responsibility and will work intelligently and vigorously for the institution of offsetting conditions of the nature of those that have been pointed out in the preceding chapter. There will be a successful accomplishment of such wonderful betterments that the setback by the war will be not only regained, but also the American people, at least, will rise higher in wealth and comfort in living than is now conceived. Something of that sort may be confidently expected but inevitably many years will elapse before the results of such efforts that have already been instituted will become appreciable. When America is able to meet the competition of toiling Europe on equal terms by virtue of mechanicalization and planning far superior to what we have now there will be an important juncture; but that is too far ahead for any intelligent forecasting now of the outcome. The destiny of the world will be in the hands of America, the British Empire and a resurrected Russia.

CHAPTER XVIII

SUMMARY

This thesis is primarily the showing that the world became enormously impoverished by the war, and that although the United States suffered less than any other country that was engaged, its position did not escape impairment. Consequently the people of the world are confronted with the prospect of a lower scale of living, which will be the case even in the United States. And secondarily it is concerned with showing the only way whereby the damage can be repaired and the former scale of living be regained and improved.

Things can not be otherwise, for any idea that the people of the world could have bettered themselves by the destruction of wealth and the loss of man power by warfare is preposterous. Even the belief that the United States became rich at the expense of Europe is fallacious. In 1915-1916 we did indeed gain about five billion dollars, but we gave all of that back to Europe and more too after we entered the war.

The supposition that the United States enriched itself during the war by the stimulation of productivity is erroneous. The apparent aggrandizement was wholly the illusion of inflation. In fact the physical volume of production during the eight years beginning with 1913 and ending with 1920 increased no more than commensurately with the increase in population.

While the production of the United States did not

increase any more than in proportion to the population, there were important changes in its nature. The output of building material decreased while that of the cereals and fuels increased. The latter was accomplished without severe effort, for in both cases there was a great deal of leeway in the labor-power, *i.e.*, neither the farmers nor the coal miners normally worked to anywhere near their capacity. In building and manufacturing there was a shifting of effort, *e.g.*, the men who had previously been building houses were transferred to the building of ships. Thus, along with the induction into regular work of many of the previously idle and many women, the subtraction of 5,000,000 men for the army and navy did not really result in so much strain in production as was fancied.

From the end of 1916 to the end of 1920 the physical wealth of the United States increased from 268 billion dollars to 272 billion as an outside figure. It is probable that there was no increase at all. In our external relations we gained about 17.8 billions in due-bills, etc., on balance. However, this is a doubtful asset at the best. Included in this item is 11 billion dollars known as the Allies' debt, respecting which there are strong arguments in favor of summary cancellation in full.

These estimates show that the United States did not enrich itself during the war. The estimates are supported by the self-evident facts that the idea of gain by virtue of such a war is *ipso facto* preposterous; and that if we had become rich we should not be so short of houses, transportation facilities and other things that are essential for our comfort as we are. This is a *reductio ad absurdum* insofar as there is belief to the contrary.

The position in 1920 looks comparatively worse if the inventory of wealth at the end of that year be divided into capital and consumable goods, the former having diminished distinctly as compared with 1916. This statement is made on the basis of writing off an enormous quantity of manufacturing plant that has become useless by reason of its superfluity. A good deal of it was erected specifically for war purposes and when it was built it was known that it would have to be written off.

Although there was no gain in the national wealth there was a redistribution thereof. In spite of their present complaints, and unquestioned adversities, the farmers as a class fared rather better by the war than most. Labor did well and immensely improved its position in so far as it was thrifty. Those who squandered their earnings in high living are about where they were before the war, with the benefit only of recollections of ephemeral luxuries, which were enjoyed at the expense of the national welfare. Notwithstanding the existence of some successful profiteers, who have managed to keep what they made, but whose number is fewer than commonly pictured, the cost of the war was borne in the main by the business interests and propertied classes of the country. The economic tragedy of the last five years has been in what is generically characterized as "Wall Street."

Immediately previous to the war the national income was about 33 billion dollars per annum, out of which we spent about 28 billion for living expenses and saved about five billion, which was put into houses, railways, public improvements, mines, factories, etc. Of the annual expenses about 10 per cent was for government—

Federal, state and municipal. During 1915 and 1916 we maintained about these rates and gained five billion dollars in addition from Europe out of the sale of surplus stock of goods and new products on a sharply rising market. Those who made money during this period by virtue of ownership of goods, manufacturing plants and ships could not avoid doing so. Conversely business men, not necessarily the same ones who had previously profited, lost money in the post-war decline.

With the entry of the United States into the war the entire surplus of earnings that formerly was saved for houses, railways and other increments of wealth was diverted to warfare and waste. Some of it was dissipated on the battlefields. Some of it was wasted in ships, munitions and manufacturing plants that were destined to be thrown away. Some of it was lost in speculations in foreign countries. In the production of these things that were going to be wasted, along with the things that the people required for their living, labor increased its share of the produce of industry from 70-75 to 80 per cent and to a large extent wasted its gains upon automobiles, moving pictures, phonographs, etc. No longer was it possible for the nation to increase its transportation and housing facilities and congestion naturally ensued.

The consequences did not immediately become apparent. In all great functions of this sort there is normally and properly a small surplus of capacity. Without any increase of our railway facilities better use of what we had was made and the people got along with more or less inconvenience. So it was with housing. Previous to the war we built normally about one billion square feet per annum. With 1917 our

production of building materials began to diminish. We were required to produce fuels and metals instead and to use men for constructing ships and making munitions in lieu of erecting houses. During the next five years our building averaged only about 500,000,000 sq. ft. per annum, which scarcely more than replaced the loss by fire and obsolescence. We did not feel this for a while, owing to the utilization of our small surplus. We deluded ourselves with the agreeable fantasy that we could have as many automobiles as we wanted; but in reality we were living on our fat, using up our principal, and when the surplus of housing was exhausted, in 1920, we began to suffer hardship on that score.

Throughout this period we fatuously fondled the illusion that we were becoming very rich, contemplating that the national income, expressed in dollars, was growing fabulously, attaining the huge total of 66 billion dollars in 1919. In fact the national product of goods was not increasing except in step with the number of workers, *i.e.*, the population, and the apparent increase was substantially wholly the result of inflation, *i.e.*, the marking up of prices. In detail this marking up was not at all times uniform, nor in the nature of things could it be so, wherefore, great dissatisfaction and discontent over inequalities arose. This found expression in the allegations of labor that wages did not rise commensurately with the cost of living, and these were the bases for demands for further advances.

On the subject of wages and the cost of living the evidence is to the contrary of the common claim. The cost of living did not outrun wages. Actually the

result was the other way around. Again the evidence of the statistics is confirmed by the deductions of logic. If the cost of living had outstripped wages labor could not by any possibility have enjoyed the luxuries of amusement, the consumption of unusual goods and of idleness to the extent that it did.

In this connection it may be remarked that my researches have exposed the uncertainty of so-called index numbers. They agree neither among themselves, nor with a truly weighted series, nor with the principles of logic. Manifestly, the most intelligent indices may be used properly only with caution, with qualifications and with reservations.

There is reason to believe that the output of minerals, metals and manufactures in tons per man declined from 1916 to 1920, and that high wages, instead of being a stimulus to increased production were a direct inspiration toward increased loafing. Many men who previously had to work 48 hours per week in order to get their living worked only 32 hours when they became able to obtain sufficient in that time. It may be conjectured that production would have declined seriously during this period if managerial efficiency had not offset the slacking by the workers. Following the collapse of the boom in 1920 the attitude of labor changed instantaneously. Work was speeded up in order to hold the job.

After the commencement of the process of deflation the national income expressed in dollars contracted with startling rapidity. In 1920 it rose to about 72 billion dollars but in 1921 it will surely be very much less than that. When the readjustment is completed there is no reason to anticipate anything

more than 37.5 billion and for a while it is likely to be lower than that. This prospect has to be faced with an expense for government that had risen to seven billion in 1919, which we are finding great difficulty in curtailing; and with the habit contracted of spending upward of three billion per annum for automobiling and more billions for other luxuries. At the same time we are in desperate need for more houses and other necessaries for decent living. Before the war we saved about five billion annually for such purposes, but now we are spending nearly that for increased cost of government and new luxuries. It simply can not be done. The national income that is in prospect is not large enough. We can not have both automobiles and houses. That is self-evident.

This spells a curtailment of luxuries, an increase of thrift, a reversion of labor's share in the produce of industry from 80 per cent of the whole back to 75 or 70 per cent or perhaps less, and a retraction in the scale of living. This implies prices and wages, in general, at the pre-war level, and maybe lower. The readjustment will not have ended until it has gone to that point. Whatever resistance there be will result simply in a prolongation of misery. The movement in this direction is inevitable, for the only thing that can check it, *viz.*, improvement in the management of industry and in the economy of production can not be instituted swiftly enough.

In foreseeing a national income of about 37.5 billion dollars there is an assumption that our trade will be on as good a basis as before the war, but that may not be so, owing to the situation of Europe, which probably must sell more to us and buy less of us than previously

and must undersell us in the foreign markets. With the United States having absorbed the most of the world's international medium of exchange and Europe substantially destitute of it the means for doing international business are enormously crippled. A solution of this supreme problem has not yet been found.

The same process of deflation that is curtailing our national income has been exploding much of what was considered to be our physical wealth. What was figured as corporate surpluses has largely vanished through the shrinkage of inventories. There has still to be faced the writing off of plant for the reason of its uselessness, either by virtue of superfluity or obsolescence. At the present time American mining and manufacturing industry is immensely overbuilt. Among the major industries there are but few exceptions to this. The textile industry and anthracite coal mining are in the best positions, neither of these having any abnormal surplus of capacity. Next in order are electrical manufacturing and petroleum refining, which although largely extended during the last five years have been so with the sound justification of especially increased demand for their products. Pigment production (white lead and zinc oxide) is also in fairly good position. Among most of the other industries overbuilding ranges from 50 to 200 per cent. This includes copper production, zinc production, iron and steel, bituminous coal, heavy chemicals (sulphuric acid and caustic soda), boot and shoe manufacturing, clothing making, shipbuilding and automobile manufacturing. The last two are in the worst way. The uselessness of most of our shipyards is already commonly recognized. In other industries

the situation has not been grasped, or if it has been it is unknown what to do about it. Herein lies a grave economic danger. The owners of surplus plant will try to keep it partially in use with the hope of getting something out of it, maintaining the deplorable conditions of an industry with an aggravated and unnecessary overhead and part-time employment of its workers; in other words a general reproduction of the conditions that have long characterized bituminous coal mining wherein the personnel habitually works only about 200 days per annum.

As yet we are a long way from the completion of readjustment and conditions are chaotically out of balance. The prices for raw materials have fallen to the neighborhood of the pre-war level, some to a little higher and some a little lower than that. The farmers of the country who derive their income from sale of their produce rather than from wages have experienced the full force of the decline and have suffered grievously inasmuch as the things they have to buy have so far cheapened but relatively little. In wages there has been a decline in the rates for common labor which now stand at about 1.25 to 1.5 above the level of 1913. In unionized labor there has not yet been much readjustment; as a generalization its wages are still about twice those of 1913. A consequence of this is extensive unemployment, for the national produce is insufficient to yield what is demanded. Many workers are therefore idle entirely, or are able to get high wages for only part time. This is a national economic loss, for through idleness physical production suffers. The situation is aggravated by the few groups of workers, like the railway men and anthracite coal miners,

controlling essential services and commodities, who have been able to maintain high wages for full time, which is at the expense of other groups of town workers and the farmers. This produces a situation that will probably lead to the downfall of labor unionism in the end, which outcome is to be anticipated. This will be to the benefit of the national welfare in general.

An obstacle in the course of the readjustment is the unintelligence of the people who will fail to learn and understand the facts, or appreciate their meaning. This will exhibit itself in the attitude of political officers in standing in the way of labor readjustment, trying to act as mediators in economic problems that are incapable of composition; and in partisan legislation, especially in taxation matters, which unfortunately is likely to be maintained on socialistic lines. The shallow idea of "soak the rich" means in the end increased hardship for the poor.

The history of the last eight years has revealed in the experiences of Mexico and Russia, the fallacy of socialism and communism as never before, which has been admitted by the premier exponent of the theory. The trouble in pre-war Russia was not an excess of capitalism but rather not capitalism enough. It has been demonstrated everywhere that labor alone can not earn a decent living for itself and that the general improvement in the scale of living of the people has been due to the intelligent direction of management. Instead of labor not receiving its rightful share of the produce of industry, it has got all that it has earned and moreover a large part of what other people have earned. In undertaking to seize the remainder of the earnings of other people it sows the seeds of its own discomfort.

There is now need for such transparency in industry, for thinking in terms of industry as a whole, and for industrial coöperation as never before. Every industry needs introspection, broad thought and concert of policy. My thought of industrial coöperation is the antithesis of the common declaration that the workers are going to have more to say respecting the conduct of industry. They are not, and really they do not want it any more than the soldiers of an army want to direct the strategy and tactics of a campaign. But just like the soldiers they are not going to be satisfied with bad generalship.

What is wanted is better leadership and it is that which the directors of industries must arrange among themselves; and they must do it for the protection of their property and the promotion of their business. That implies industrial coöperation, which in its broadest economic sense is something that is to be sought practically among employers alone, and not between them as a group and their workmen as a group, no matter how much the participation of the latter is theoretically desirable.

In the repairing of the damage that was done to the world by the war, management must assume the full responsibility, and will do so. With such recognition and driven by the force of circumstances improvements in the regulation of industry and in the economy of production will be made that will eventually bring about a higher scale of living than ever before, but it is humanly impossible to make big advances in that direction in short order and the progress will be delayed by the obstacles that will be put in the way by the unintelligent.

APPENDICES

APPENDIX A

PRODUCTION AND VALUE OF COMMODITIES

The data for the quantity and value of production given in the accompanying tables are in the main as reported by the U. S. Geological Survey and the U. S. Department of Agriculture. The quantities of copper, lead and zinc are as given by the American Bureau of Metal Statistics, and of pig iron as reported by the American Iron and Steel Institute, but in each of these cases aggregate values are computed from the averages of the Geological Survey. As for the rest, the data for minerals and metals are just as reported by the Geological Survey, except that the value figures for coals in 1920 are preliminary figures privately communicated to me by the Director of the U. S. Geological Survey. For agricultural and animal products the quantity figures are as reported by the U. S. Department of Agriculture, except that it was necessary to introduce estimates for the product of meat in 1913 and 1920, apples in 1913-1915, milk in 1913-1916, eggs in 1913-1915 and poultry in 1913-1915 and 1920. The data as exactly reported, in bushels, bales, etc., have been converted by me into tons of 2,000 lb. by means of the factors given in Chapter II.

The value figures for agricultural and animal products are those of the U. S. Department of Agriculture in so far as reported thereby. The department does not, however, give any figures for certain commodities,

especially meat, milk, eggs and poultry. The total value of those commodities I have estimated with the assistance of average market quotations for the several years. It was also necessary to estimate the value of lumber for 1913, 1914 and 1920 and the value of apples for 1913-1915. So far as I have been able to discover there are neither any estimates of the total value of the meat produced in the United States nor any quotational averages from the markets. I have computed the average value of the meat product of each year from the exportation and reported export value of beef, bacon, ham and fresh pork in each year.

The production and value data as given in the accompanying tables, and as explained above, constitute a subject that may be usefully studied more carefully and elaborately. While recognizing the opportunity for this, however, I am certain that the results of further study of this subject will be of the nature of refining rather than any radical revision.

PRODUCTION OF THE PRINCIPAL RAW MATERIALS STATED IN UNITS OF 1,000 TONS OF 2,000 LB.

	1913	1914	1915	1916	1917	1918	1919	1920
<i>Building material:</i>								
Lumber.....	76,774	74,682	74,023	79,615	71,662	64,000	69,104	67,560
Cement.....	16,834	16,404	16,485	17,934	17,172	13,414	16,195	18,225
Sand and gravel.....	79,000	79,282	76,603	89,092	76,419	61,824	70,576	77,887
Stone.....	97,364	90,168	86,739	91,831	83,575	68,568	71,380	68,500
Lime.....	3,595	3,381	3,623	4,073	3,786	3,206	3,073	3,350
Total.....	273,567	263,927	267,473	282,545	252,614	211,012	280,328	235,522
<i>Fibers:</i>								
Cotton.....	3,539	4,034	2,798	3,184	2,968	3,010	2,855	3,247
Wool.....	148	145	143	144	141	149	157	154
Total.....	3,687	4,179	2,941	3,328	3,109	3,159	3,012	3,401
<i>Cereals:</i>								
Corn.....	68,516	74,839	83,854	72,331	85,827	70,075	80,038	90,506
Wheat.....	22,901	26,731	30,774	19,196	19,100	27,643	28,028	23,614
Oats.....	17,948	18,257	14,784	20,027	25,484	24,610	19,708	24,417
Barley.....	4,009	4,386	5,149	4,071	4,765	5,765	3,630	4,546
Rye.....	1,159	1,198	1,513	1,327	1,762	2,549	2,489	1,941
Total.....	114,533	125,411	146,074	116,952	136,938	130,642	133,893	145,024
<i>Other agricultural:</i>								
Meat.....	9,000	9,039	9,500	10,384	9,405	11,683	11,287	11,000
Potatoes.....	9,946	12,298	10,792	8,609	13,276	12,356	10,673	12,914
Apples.....	6,500	6,000	6,500	6,921	5,900	6,158	5,863	5,822
Milk.....	42,000	42,000	42,000	42,000	42,306	43,933	45,029	44,329
Eggs.....	1,020	1,020	1,020	1,021	941	921	1,135	1,028
Poultry.....	1,470	1,470	1,470	1,470	1,621	1,647	1,634	1,600
Sugar.....	865	1,034	969	1,132	1,011	1,045	849	1,296
Tobacco.....	477	517	531	577	625	720	727	754
Total.....	71,268	73,378	72,782	72,114	76,085	78,683	77,197	82,243

<i>Metals:</i>									
Iron.....	34,682	26,132	33,506	44,956	44,028	44,522	35,358	42,096	
Copper.....	614	579	712	971	961	969	605	635	
Zinc.....	353	370	507	680	682	525	480	472	
Lead.....	436	539	536	592	582	556	455	472	
Total.....	36,085	27,620	35,261	47,199	46,253	46,572	36,890	43,683	
<i>Fuels:</i>									
Coal—hard.....	91,525	90,821	88,995	87,578	99,612	98,826	88,092	89,100	
Coal—soft.....	478,435	422,704	442,624	502,520	551,791	579,386	458,063	556,563	
Petroleum.....	34,782	37,207	39,355	42,107	46,944	49,830	52,881	62,076	
Total.....	604,742	550,732	570,974	632,205	698,347	728,042	599,036	707,739	
<i>Other minerals:</i>									
Gypsum.....	2,600	2,476	2,448	2,758	2,696	2,057	2,420	3,130	
Phosphate rock.....	3,485	3,062	2,056	2,221	2,894	2,790	2,545	4,696	
Salt.....	4,816	4,873	5,352	6,363	6,978	7,239	6,853	6,965	
Clay.....	2,648	2,210	2,363	2,933	3,114	2,976	2,363	2,900	
Sulphur.....	550	468	583	728	1,271	1,516	1,333	1,406	
Pyrites.....	382	377	441	492	541	520	471	308	
Total.....	14,481	13,466	13,243	15,495	17,494	17,098	16,015	19,305	
<i>Summary:</i>									
Building material.....	273,567	263,927	257,473	282,545	252,614	211,012	230,328	235,522	
Fibers.....	3,687	4,179	2,941	3,328	3,109	3,159	3,013	3,401	
Cereals.....	114,533	125,411	146,074	116,952	136,938	130,642	133,893	145,024	
Other agricultural.....	71,268	73,378	72,782	72,114	75,085	78,683	77,197	82,243	
Metals.....	39,085	27,620	35,261	47,199	46,253	46,572	36,890	43,683	
Fuels.....	604,742	550,732	570,974	632,205	698,347	728,042	599,036	707,739	
Other minerals.....	14,481	13,466	13,243	15,495	17,494	17,098	16,015	19,305	
Grand total.....	1,118,363	1,058,713	1,098,748	1,169,838	1,229,840	1,215,206	1,096,371	1,236,917	
The hay crop.....	64,116	70,071	85,920	110,992	94,930	91,139	109,152	108,233	

WEALTH AND INCOME OF

	1913	1914	1915	1916	1917	1918	1919	1920
VALUE OF THE PRINCIPAL RAW MATERIALS PRODUCED ANNUALLY IN THE UNITED STATES STATED IN UNITS OF \$1,000								
<i>Building material:</i>								
Lumber.....	\$ 575,805	\$ 522,844	\$ 519,644	\$ 609,847	\$ 728,091	\$ 790,565	\$ 1,400,000	\$ 1,486,320
Cement.....	89,551	80,533	75,155	104,689	123,210	113,555	147,318	194,513
Sand and gravel.....	24,217	23,847	23,122	29,810	35,297	37,921	45,952	62,694
Stone.....	83,783	77,544	74,595	79,070	82,216	82,700	93,500	120,500
Lime.....	14,648	13,269	14,424	18,509	23,808	26,809	27,643	33,321
Total.....	\$ 787,954	\$ 718,037	\$ 706,940	\$ 841,925	\$ 992,622	\$ 1,051,550	\$ 1,714,413	\$ 1,897,348
<i>Fibers:</i>								
Cotton.....	\$ 885,350	\$ 591,130	\$ 627,940	\$ 994,060	\$1,532,660	\$ 1,737,710	\$ 2,030,960	\$ 903,340
Wool.....	51,000	53,000	65,000	80,000	133,000	173,000	162,000	125,000
Total.....	\$ 936,350	\$ 644,130	\$ 692,940	\$1,074,060	\$1,665,660	\$1,910,710	\$ 2,192,960	\$ 1,028,340
<i>Cereals:</i>								
Corn.....	\$1,692,092	\$1,722,070	\$1,723,690	\$2,280,729	\$3,920,228	\$ 3,416,240	\$ 3,851,741	\$ 2,189,721
Wheat.....	610,122	878,680	942,303	1,019,968	1,278,112	1,881,826	2,009,407	1,133,806
Oats.....	439,596	499,431	559,506	655,928	1,061,474	1,090,322	880,296	719,782
Barley.....	95,731	105,903	118,172	160,646	240,758	234,942	195,299	142,931
Rye.....	26,290	37,018	45,083	59,676	104,447	138,088	119,586	88,609
Total.....	\$2,863,761	\$3,243,102	\$3,387,744	\$4,176,947	\$6,605,019	\$ 6,761,368	\$ 7,056,339	\$ 4,276,849
<i>Other agricultural:</i>								
Meat.....	\$2,430,000	\$2,603,202	\$2,527,000	\$3,011,433	\$3,895,453	\$ 6,075,114	\$ 6,930,001	\$ 5,412,000
Potatoes.....	227,903	199,460	221,992	419,333	542,774	491,527	571,368	500,974
Apples.....	221,000	240,000	186,000	187,000	198,220	225,562	285,069	271,984
Milk.....	1,463,000	1,174,824	1,174,824	1,213,985	1,972,282	2,213,016	2,980,921	2,925,999
Eggs.....	307,000	321,200	314,160	351,499	445,425	527,539	676,000	689,055
Poultry.....	346,920	358,680	349,860	390,965	541,552	768,306	777,701	816,000
Sugar.....	77,000	91,000	127,600	157,500	163,000	148,000	171,000	374,000
Tobacco.....	122,481	101,411	96,281	169,672	300,449	402,264	563,709	318,359
Total.....	\$5,195,304	\$5,089,877	\$4,970,617	\$5,901,387	\$8,044,155	\$10,896,328	\$12,968,769	\$11,306,271

Metals:										
Iron.....	\$ 466,821	\$ 313,063	\$ 395,038	\$ 680,699	\$ 1,072,527	\$ 1,227,480	\$ 811,960	\$ 1,198,463		
Copper.....	190,419	154,049	249,244	477,923	524,751	478,661	224,988	233,771		
Zinc.....	39,531	44,424	125,737	172,245	189,212	95,614	68,865	77,773		
Lead.....	38,338	42,026	50,363	81,729	100,055	78,985	48,222	75,479		
Total.....	\$ 735,109	\$ 553,562	\$ 820,382	\$ 1,412,526	\$ 1,836,545	\$ 1,880,740	\$ 1,154,035	\$ 1,885,435		
Fuels:										
Coal—hard.....	\$ 195,181	\$ 184,653	\$ 184,653	\$ 202,009	\$ 283,650	\$ 336,480	\$ 364,927	\$ 425,000		
Coal—soft.....	565,285	493,309	502,038	665,116	1,249,273	1,491,810	1,170,000	1,950,000		
Petroleum.....	237,121	214,125	179,468	330,900	522,635	703,944	775,000	1,360,000		
Total.....	\$ 997,587	\$ 895,615	\$ 866,154	\$ 1,198,025	\$ 2,055,558	\$ 2,532,234	\$ 2,309,927	\$ 3,735,000		
Other minerals:										
Gypsum.....	\$ 6,775	\$ 6,896	\$ 6,597	\$ 7,959	\$ 11,116	\$ 11,471	\$ 15,728	\$ 24,533		
Phosphate rock.....	11,796	9,608	5,413	5,897	7,771	8,214	11,591	25,079		
Salt.....	10,123	10,197	11,748	13,646	19,940	26,940	27,075	30,839		
Clay.....	4,180	3,757	3,972	5,752	8,043	8,333	7,077	12,084		
Sulphur.....	8,688	7,589	8,782	10,375	24,288	29,778	18,001	24,804		
Pyrites.....	1,286	1,283	1,675	1,966	2,436	2,644	2,568	1,450		
Total.....	\$ 42,798	\$ 39,330	\$ 38,187	\$ 45,595	\$ 73,643	\$ 87,380	\$ 82,030	\$ 118,499		
Summary:										
Building materials.....	\$ 787,954	\$ 718,037	\$ 706,940	\$ 841,925	\$ 992,622	\$ 1,051,550	\$ 1,714,413	\$ 1,897,343		
Fibers.....	936,350	644,130	692,940	1,074,060	1,665,690	1,910,710	2,192,960	1,028,340		
Cereals.....	2,868,761	3,243,102	3,387,744	4,176,947	6,605,019	6,761,368	7,056,339	4,276,849		
Other agricultural.....	5,195,304	5,089,877	4,970,617	5,901,387	8,044,155	10,866,328	12,958,769	11,308,271		
Metals.....	735,109	553,562	820,382	1,412,526	1,836,545	1,880,740	1,154,035	1,885,435		
Fuels.....	997,587	895,615	866,154	1,198,025	2,055,558	2,532,234	2,309,927	3,735,000		
Other minerals.....	42,798	39,330	38,187	45,595	73,643	87,380	82,030	118,499		
Grand total.....	\$11,558,813	\$11,183,653	\$11,489,964	\$14,650,465	\$21,273,252	\$25,090,310	\$27,469,473	\$23,949,742		

	VALUE OF THE PRINCIPAL RAW MATERIALS PRODUCED ANNUALLY IN THE UNITED STATES CALCULATED AT THE PRICES OF 1913 AND STATED IN UNITS OF \$1,000							
	1913	1914	1915	1916	1917	1918	1919	1920
<i>Building material:</i>								
Lumber.....	\$ 575,805	\$ 560,190	\$ 555,175	\$ 597,109	\$ 537,469	\$ 480,000	\$ 518,282	\$ 506,700
Cement.....	89,551	87,272	87,699	95,410	91,858	71,360	86,155	99,960
Sand and gravel.....	24,217	24,260	23,441	27,262	23,384	18,918	21,696	23,833
Stone.....	83,733	77,544	74,595	78,975	71,874	58,969	61,337	58,910
Lime.....	14,648	13,760	14,745	16,579	15,411	13,048	12,508	13,634
Total.....	\$ 787,954	\$ 763,026	\$ 755,655	\$ 815,335	\$ 739,496	\$ 642,295	\$ 699,928	\$ 700,037
<i>Fibers:</i>								
Cotton.....	\$ 885,350	\$1,009,078	\$ 699,936	\$ 796,572	\$ 742,637	\$ 753,015	\$ 714,269	\$ 812,206
Wool.....	51,000	49,970	49,201	49,677	49,174	48,545	45,690	44,652
Total.....	\$ 936,350	\$1,059,048	\$ 749,137	\$ 846,249	\$ 791,811	\$ 801,560	\$ 759,959	\$ 856,858
<i>Cereals:</i>								
Corn.....	\$1,692,092	\$1,847,763	\$2,070,360	\$1,785,846	\$2,119,057	\$1,730,142	\$1,976,144	\$2,594,000
Wheat.....	610,122	712,101	819,890	511,394	508,315	736,413	746,665	629,073
Oats.....	439,596	447,113	606,972	490,470	624,099	602,699	482,650	597,969
Barley.....	95,731	104,748	122,982	97,212	113,778	137,670	86,691	108,547
Rye.....	26,220	27,106	34,248	30,024	39,377	57,687	56,336	43,923
Total.....	\$2,863,761	\$3,138,831	\$3,654,362	\$2,914,946	\$3,405,626	\$3,264,611	\$3,348,486	\$3,973,512
<i>Other agricultural:</i>								
Meat.....	\$2,430,000	\$2,440,502	\$2,656,000	\$2,803,748	\$2,539,455	\$3,154,386	\$3,047,394	\$2,970,000
Potatoes.....	227,903	281,739	247,236	197,223	304,155	283,071	244,523	295,854
Apples.....	221,000	204,000	221,000	235,298	200,604	209,379	199,350	299,952
Milk.....	1,463,000	1,463,000	1,463,000	1,463,000	1,473,501	1,530,883	1,548,351	1,561,394
Eggs.....	307,000	307,000	307,000	307,184	283,314	277,101	341,753	309,263
Poultry.....	346,920	346,920	346,920	346,871	382,653	435,866	385,583	377,600
Sugar.....	77,000	93,096	87,219	101,885	91,035	94,123	76,406	116,666
Tobacco.....	122,481	132,874	136,413	148,104	160,432	184,805	186,816	193,666
Total.....	\$5,195,804	\$5,269,131	\$5,373,788	\$5,603,313	\$5,435,149	\$6,169,614	\$6,050,176	\$6,124,385

Metals:										
Iron.—pig.....	\$ 466,821	\$ 351,738	\$ 450,993	\$ 605,103	\$ 592,619	\$ 599,270	\$ 475,912	\$ 566,607		
Copper.....	190,419	179,681	230,769	301,180	297,996	300,375	187,490	196,927		
Zinc.....	39,531	41,462	56,784	76,162	76,430	58,339	52,829	53,734		
Lead.....	38,338	47,396	47,148	52,117	51,191	48,949	40,083	41,513		
Total.....	\$ 735,109	\$ 620,127	\$ 775,684	\$ 1,034,512	\$ 1,018,236	\$ 1,007,433	\$ 756,264	\$ 858,781		
Fuels:										
Coal—hard.....	\$ 195,181	\$ 193,450	\$ 189,559	\$ 186,542	\$ 212,173	\$ 210,500	\$ 187,686	\$ 189,783		
Coal—soft.....	565,235	498,791	522,297	592,973	651,113	683,685	540,514	656,744		
Petroleum.....	237,121	253,750	268,398	287,172	320,159	339,840	350,646	423,360		
Total.....	997,537	\$ 945,991	\$ 980,254	\$ 1,066,687	\$ 1,183,445	\$ 1,234,025	\$ 1,088,796	\$ 1,269,887		
Other minerals:										
Gypsum.....	6,775	6,464	6,388	7,198	7,037	5,369	6,317	8,170		
Phosphate rock.....	11,796	10,411	6,990	7,549	9,841	9,485	8,653	15,628		
Salt.....	10,123	10,233	11,240	13,362	14,654	15,201	14,454	14,627		
Clay.....	4,180	3,492	3,733	4,633	4,920	4,702	3,783	4,582		
Sulphur.....	8,638	7,349	9,160	11,431	19,960	23,816	20,948	22,066		
Pyrites.....	1,286	1,267	1,483	1,653	1,816	1,748	1,583	1,035		
Total.....	\$ 42,768	\$ 39,216	\$ 38,994	\$ 45,826	\$ 58,228	\$ 60,321	\$ 55,687	\$ 66,128		
Summary:										
Building materials.....	\$ 787,954	\$ 763,026	\$ 755,655	\$ 815,335	\$ 739,496	\$ 642,295	\$ 699,928	\$ 700,037		
Fibers.....	936,350	1,059,048	749,137	846,249	791,711	801,560	759,959	856,858		
Cereals.....	2,863,761	3,138,821	3,654,362	2,914,946	3,405,626	3,264,611	3,348,486	3,973,512		
Other agricultural.....	5,196,804	5,269,181	5,373,788	5,609,313	5,436,149	6,169,614	6,050,176	6,124,385		
Metals.....	735,109	620,127	775,684	1,034,512	1,018,236	1,007,433	756,264	858,781		
Fuels.....	997,537	945,991	980,254	1,066,687	1,183,445	1,234,025	1,088,796	1,269,887		
Other minerals.....	42,768	39,216	38,994	45,826	58,228	60,321	55,687	66,128		
Grand total.....	\$11,558,813	\$11,835,370	\$12,327,874	\$12,326,968	\$12,631,891	\$13,179,859	\$12,759,296	\$13,849,588		

AVERAGE VALUES PER TON OF 2,000 LB. OF THE PRINCIPAL COMMODITIES PRODUCED IN THE UNITED STATES

	1913	1914	1915	1916	1917	1918	1919	1920
<i>Building material:</i>								
Lumber.....	\$ 7.50	\$ 7.00	\$ 7.02	\$ 7.66	\$ 10.16	\$ 12.40	\$ 20.26	\$ 22.00
Cement.....	5.32	4.91	4.56	5.84	7.12	8.46	9.09	10.67
Sand and gravel.....	.30	.33	.30	.33	.46	.61	.65	1.55
Stone.....	.86	.86	.86	.86	1.21	1.31	1.76	1.94
Lime.....	4.08	3.92	3.98	4.54	6.28	8.36	9.00	9.94
<i>Fibers:</i>								
Cotton.....	260.16	146.59	224.43	312.18	516.36	577.29	711.31	278.23
Wool.....	344.39	365.27	454.99	554.62	943.62	1157.70	1033.04	810.35
<i>Cereals:</i>								
Corn.....	24.69	23.01	20.54	31.53	45.68	48.75	48.12	24.18
Wheat.....	26.04	32.87	30.62	53.13	66.92	68.08	71.69	48.10
Oats.....	24.49	27.36	22.97	32.78	41.65	44.31	44.66	29.48
Barley.....	23.88	24.14	22.95	39.46	60.53	40.76	53.80	31.45
Rye.....	22.63	30.90	29.79	44.98	33.86	54.15	48.04	45.65
<i>Other agricultural:</i>								
Wheat.....	270.00	288.00	268.00	290.00	418.00	520.00	614.00	492.00
Potatoes.....	22.91	16.22	20.37	45.71	40.89	39.78	38.53	38.79
Apples.....	34.00	40.00	24.46	27.02	33.65	36.70	48.61	60.84
Milk.....	34.83	27.97	25.90	25.90	46.63	50.35	68.20	65.28
Eggs.....	360.88	315.00	308.00	344.40	473.20	573.00	592.85	670.60
Poultry.....	286.00	244.00	286.00	286.00	334.00	416.00	476.00	519.00
Sugar.....	90.04	88.02	131.62	139.19	146.89	156.93	201.51	288.97
Tobacco.....	286.84	196.03	181.28	284.25	481.00	559.06	779.13	422.31
<i>Metals:</i>								
Copper.....	13.46	11.08	11.79	15.14	24.36	27.57	22.97	28.47
Zinc.....	31.00	266.00	359.00	492.00	548.89	494.00	372.00	368.00
Lead.....	119.00	170.08	248.00	268.00	294.00	182.00	143.00	168.00
.....	88.00	76.08	94.00	188.00	173.00	142.00	106.00	160.00
<i>Fuels:</i>								
Coal—hard.....	2.13	1.07	2.07	2.31	2.85	3.40	4.14	4.77
Coal—soft.....	1.18	1.14	1.14	1.32	2.26	2.57	2.56	3.50
Petroleum.....	6.82	5.76	4.56	7.86	11.13	14.13	14.65	21.91
<i>Other minerals:</i>								
Gypsum.....	2.61	2.78	2.69	2.89	4.12	5.58	6.50	7.84
Phosphate rock.....	3.40	3.18	2.63	2.65	2.68	2.94	4.55	5.45
Salt.....	2.10	2.08	2.19	2.69	2.98	2.73	3.94	4.89
Clay.....	1.58	1.70	1.68	1.62	2.58	2.69	2.69	4.17
Sulphur.....	15.71	16.22	15.08	14.26	19.13	19.48	13.50	17.45
Pyrites.....	3.86	3.41	3.79	3.69	4.69	5.08	5.48	4.71

APPENDIX B

INDEX NUMBERS

The two sets of index numbers that I have computed (see Chapter II) are derived from the tables in Appendix A and may be described as (1) the index number of value of commodity production and (2) the index number of physical volume of production.

The computation of the first series is simple. The sum of the values of the commodities produced in each year divided by the number of tons of the commodities gives the average value per ton. Taking the average value per ton in 1913 as 100, indices for the following years are estimated by simple proportion.

For the computation of the second series the value of the production of commodities in each year is reckoned at the average value in 1913. This eliminates the element of change in price and gives totals representing the physical volume of production expressed in terms of the dollar of 1913. Taking the total for 1913 as 100 the indices for following years are derived by simple proportion.

Attention has already been drawn in Chapter II to the discrepancy between these indices and those of other authorities, especially those that are supposed to reflect commodity prices. Consideration of the subject shows that no single set of index numbers can possibly represent everything. We may have one set for commodity production, another for commodity

consumption, another for commodity prices at wholesale, another for commodity prices at retail, and so on.

The figures for the first series that I have computed are for commodity production. If the basic data for production should be caused to enter into a computation of consumption, by adding the data for imports and deducting the data for exports, a series of index numbers for commodity consumption could be derived. This would differ from the indices for production, but perhaps not very much.

The fundamental data on which my indices for production are computed are the production of minerals and metals as reported by the U. S. Geological Survey and the production of agricultural and animal products as reported by the U. S. Department of Agriculture. The same data constitute the basis for the computation of the national income by one of the methods employed by the National Bureau of Economic Research. Consequently a chart of the figures for the total national income and my index numbers ought to give lines of substantially the same character, which in fact is the case.

For the same reason, there is bound to be a difference between my index numbers of value of production and those for commodity prices. The production of mineral and metal products is substantially constant throughout the year, but that of agricultural products is largely seasonal. The U. S. Department of Agriculture computes the value of the main products at the price prevailing toward the end of the year, after the harvest has been completed. Consequently it may happen that in a year like 1920 the quotations for wheat, cotton and other things were high during most of the

year reflecting the market for the crop of the previous year and probably dwindling transactions, while conditions were shaping themselves toward marketing of the new crop at greatly diminished value.

Even with respect to other commodities there is apt to be an important difference between quotations and aggregate product-value. With regard to the metals for example, most of them are produced in different grades, but the market quotation commonly represents only one grade. Moreover the monthly and annual averages of market quotations are purely arithmetical, and the bulk of the product may have been sold at prices above or below the quotational average. The geographical basis for quotation is also a factor.

It is only with respect to relatively few commodities that the system of market quotations is well developed. The quotation of the copper market is one of the best, but even in its case the quotational and actual averages may be thrown out of joint by grossly abnormal conditions, such as happened during the war. Many great industries are conducted on a contractual basis, in which case there are no reliable means for the determination of market quotations from day to day, or month by month. This is the case with sulphuric acid, which is the fundamental commodity in the whole chemical industry.

It follows from this that index numbers of commodity prices, when based on market quotations, can not by any possibility be just right, not even if they were carefully weighted as to the relative importance of the several commodities entering into the calculation. When the selection of the commodities is more or less arbitrary, the computer of the index numbers is in

danger of going more and more astray. This is mainly the reason why the computers of index numbers of commodity prices differ among themselves.

When we pass to the subject of index numbers of retail prices, wages, cost of living, etc., the whole thing becomes more and more arbitrary, and consequently there are more and more discrepancies. Attempts have been made by some people to devise and compute what they call the "ideal index number." They have failed, for the reason that there can be no such thing as an ideal index number. The most that can be expected is the calculation of series of numbers which show faithfully and intelligently the relative trend of things in single lines of thought.

APPENDIX C

POTENTIAL WEALTH OF THE UNITED STATES

In his annual report for 1921, the Secretary of the Interior stated that 400,000,000 acres of land remain in the Public Domain of the United States and that this contains wealth estimated at a minimum of 150 billion dollars, from which the Government may expect to realize \$12,387,500,000 in royalties. Details of the Secretary's estimates are as follows:

PUBLIC OWNERSHIP

Bituminous coal, 10 billion tons at 10 cts. royalty, one billion dollars.

Sub-bituminous coal, 30 billion tons at 8 cts. royalty, 2.4 billion dollars.

Lignite coal, 50 billion tons at 5 cts. royalty, 2.5 billion dollars.

Oil (crude), 700,000,000 barrels at \$2, 1.4 billion dollars at 12½ cts. royalty, \$175,000,000.

Shale oil, 50 billion barrels at \$2, 100 billion dollars, at 5 cts. royalty, 5 billion dollars.

Phosphate rock, 3.5 billion tons at \$4, 14 billion dollars, at 2 per cent royalty, \$280,000,000.

Potash, 20,000,000 tons at \$75, 1.5 billion dollars, at 2 per cent royalty, \$30,000,000.

Water power, 13,000,000 horse-power at 10 cts. per horse-power per year, \$1,300,000.

INDIAN RESERVATIONS

Oil, 600,000,000 barrels at \$3, 18 billion dollars.

Phosphate rock, one billion tons at \$4, 1.5 billion dollars.

ALASKA

Coal, 20 billion tons all grades, at 5 cts. royalty, one billion dollars.

Oil, 25,000,000 barrels at \$1, \$25,000,000; at 10 per cent royalty, \$2,500,000.

Water power, 2,500,000 horse-power at 10 cts. per horse-power per year, \$250,000.

SURFACE VALUE, EXCLUDING FORESTS

Desert and semi-arid lands, 100,000,000 acres at \$1, \$100,000,000.

Grazing lands, 75,000,000 acres at \$2, \$150,000,000.

Grazing and forage lands, 15,000,000 acres at \$4, \$60,000,000.

NATIONAL FORESTS

Grazing lands, 110,000,000 acres at \$2.50, \$275,000,000.

Timberlands, \$580,000,000.

Other resources, \$145,000,000.

Natural resources of the above character come under the head of what I have characterized as potential wealth in Chapter IV. Insofar as such potential wealth exists in private property it is taken into account in my estimates of physical wealth, appearing under the heads of lands, mines, etc. Insofar as such wealth exists in the public domain it is not inventoried, the public lands being exempt from taxation. While it is

true that these lands have a certain cash value, it is also true that the monetary value of the natural resources contained on and in them is nothing like what Secretary Fall has estimated. His estimate in fact ignores the principle of present value of assets of deferred realizability. As I have shown in the section on mines in Chapter IV of this work the present value of deferred assets diminishes very rapidly with time after 15 years; and the present value of resources that can not be realized until after the lapse of 30 years is practically negligible.

APPENDIX D

OTHER ESTIMATES OF NATIONAL WEALTH

Official figures compiled in connection with the Conference on Limitation of Armament in Washington in November and December, 1921, included the following estimates of the population and national wealth of the five participating countries¹:

	<i>Population</i>	<i>National wealth</i>	<i>Per capita</i>
United States.....	106,418,000	\$350,000,000,000	\$3,289
British Empire.....	45,516,000	180,000,000,000	3,955
France.....	41,476,000	100,000,000,000	2,411
Italy.....	36,740,000	30,000,000,000	817
Japan.....	55,961,000	25,000,000,000	447

Study of the data of the physical wealth of the United States that I have presented in this book will show that an estimate of 350 billion dollars for the national wealth of the United States can be justified only by reckoning most of the items at greatly inflated values and by not allowing anything for losses. The figures for the British Empire and France also appear highly questionable.

Some estimates of the national wealth of other countries have also appeared recently. Sweden, \$6,000,000,000; Argentina, \$13,800,000,000; Japan (1913) 32 billion yen; (1921) 86 billion yen.

¹ These estimates were reported by the *Wall Street Journal*. An attempt to verify them through that paper developed that they came from one of the experts at the conference, but it proved to be impossible to trace the matter any further. Edgar Crammond in a paper read before the Bankers' Institute of London, in June, 1920, estimated the national wealth of the United States at 350-400 billion dollars (which is clearly wrong); United Kingdom, 120; France, 92.5; Italy, 35.5; Japan, 23.5.

An estimate of China's population has been made by the customs and postal officials with the result of 447,000,000 population for all of China. The probable wealth above ground is put at about 50 billion dollars. This estimate is interesting. China is a country of ancient civilization and practical absence of mechanization. It is truly the habitat of what has been called the "economic man." Yet its national wealth is apparently but little more than \$100 per head of population.

In a book on "Die Folgen der Markentwertung für uns und die andern" by Dr. Henry Behnsen and Dr. Werner Genzmer, recently published in Leipzig, it is estimated that the national wealth of Germany in 1912 was 300 billion gold marks (71.4 billion dollars) and the national income 40 billion gold marks (9.52 billion dollars). In 1919, the national wealth had fallen to 188 billion gold marks and the national income to 24.4 billion gold marks.

The losses due to the war are estimated as follows, the figures representing millions of marks:

1. Loss of national wealth in private hands:

Liquidation of German property abroad.....	16,000
Surrendered merchant fleet (4.6 million gross tons).....	2,300
Surrendered marine cables.....	85
National wealth in surrendered territory.....	25,000
Total.....	43,385

2. Loss of state property:

Property in surrendered territory.....	4,481
Saar mines.....	1,056
Value of five surrendered railway bridges.....	8
Railway yards in surrendered territory.....	204
Abandoned property not military.....	2,497
Total.....	8,246

3. Forced deliveries to April 1, 1921:	
Rolling stock (locomotives, cars, etc.).....	1,324
Railway supplies.....	1
Agricultural implements.....	17
Industrial machinery.....	179
Cattle deliveries.....	140
Coal and coke (23.4 million tons to Apr. 1, 1921).....	430
Dyestuffs and chemicals.....	31
Total.....	2,122
4. Valuation of destroyed forts, arms, airships, munition factories, etc.....	
	25,000
Grand total.....	79,000

To this sum must be added burdens imposed since Apr. 18, 1921, and the loss by the Upper Silesia award. Altogether the total is put at 100 billion gold marks. In addition thereto the allies have stipulated a reparation of 132 billion gold marks, present value, or about 287 gold marks final value. I submit this estimate merely for what it is worth, recognizing its natural bias. Certainly the value of destroyed forts, armaments, etc., is no economic loss.

The total German indemnity is 132 billion gold marks, equivalent to \$31,455,600,000. This is covered by bonds of three series, A, B and C, of which only A and B have been issued. The total of class A and class B bonds amounting to 12 billion dollars requires an annual service in interest and sinking fund of approximately \$714,900,000. To cover this sum a fixed annual payment of \$476,600,000 is required, payable quarterly Jan. 15, Apr. 15, July 15, and Oct. 15 of each year; and in addition thereto a sum equal to 26 per cent of the value of German exports, which is payable quarterly Feb. 15, May 15, Aug. 15 and Nov. 15 of each year. The payments may be in gold or in foreign exchange,

or in goods as arranged. According to the supplementary Wiesbaden agreement a portion of the indemnity to France has been made payable in goods (see Chapter VII).

The total payments to be made during reparation fiscal year ending Apr. 30, 1922, are estimated at \$651,273,000. Of this sum payments of \$238,300,000 have been made in cash, \$119,150,000 in goods, and \$12,000,000 by collections in Great Britain under the Recovery Act which provides that 26 per cent of value of goods imported from Germany be paid by the British importer to his government, to be credited to Germany. The total amount from these three sources is \$369,000,000. The cash payments of \$238,300,000 completed Aug. 31, 1921, included about \$65,000,000 secured abroad on special short term credits which must be repaid before Apr. 30, 1922.

The remainder due up to Apr. 30, 1922, after payment of the \$369,000,000 mentioned amounts to \$281,000,000. The German government has given notice of its inability to meet in full the instalments due Feb. 15 and March 15, 1922.

APPENDIX E

SUPPLEMENTARY DATA

The following paragraphs are of the nature of footnotes to the text of Chapters I–XII, making some corrections, some explanations, and some elaborations in the light of later information.

P. 8 *American Wealth*.—Expressions of belief that the American people profited greatly out of the war are prevalent, both in Europe and at home. In fact the only way whereby our national position can be definitely determined is by inventory, such as I have done for the ends of 1916 and 1920. Those studies convinced me that the next earlier estimate of the census was too low, and no great confidence may be entertained with respect to the new census enumeration now in process. Such a survey can not be made intelligently by census methods, which at the best can give only a hodge-podge total of what people think they have got; not what they have really got.

Having made such an inventory for the end of 1916 I could make the reasonable assumption that during 1915 and 1916 we had made our normal increase in wealth by saving, plus a profit realized largely from the sale of our surplus goods to Europe at rising prices, which was measured approximately by the gold and securities that we got from Europe. The next period (1917–20) comprised our participation in the war and in the immediate consequences thereof. During that period we gained, according to my estimates (which I

think make the best of things) about four billion dollars in physical inventory, plus about 17.8 billion in very uncertain credits.

My estimates of physical wealth were founded on the thesis that during the two periods we put an immense amount of labor and material into plant that would have to be thrown away as useless, and I did the writing off then and there. Of course the experience with our fleet is the best example of the validity of this thought.

P. 27 Index Numbers.—I have recomputed the tables of production and values, which appear both in the text and in Appendix A. Inasmuch as this indicated no need for modification of the reasoning and deductions I have not considered it to be necessary to substitute the new tables in the new edition. However, the index numbers have been corrected according to the recalculation and therefore they no longer agree with the data of the older tables.

P. 37 Foreign Obligations Accrued.—Comptroller Crissinger in a paper read before the Indiana Bankers Association in September, 1922, summarized the loans of the American Government to foreign governments, the repurchase of American securities abroad, the extension of commercial credits and the purchase of foreign securities and currencies as follows:

American securities repurchased from abroad.....	\$ 3,000,000,000
American government loans.....	10,000,000,000
Interest on government loans.....	2,000,000,000
Commercial credits extended abroad.....	3,000,000,000
Dollar securities bought from foreign countries 1919, 1920, 1921, 1922 (eight months).....	2,631,000,000
Foreign money securities sold here.....	620,000,000
Foreign currencies bought by America.....	\$ 500,000,000
Total.....	\$21,751,000,000

P. 43 *Foreign Balances Due to the United States.*—Dr. John H. Williams in 1922 obtained replies to a questionnaire from 41 banks and financial houses, which showed that in 1919–21 they imported \$620,000,000 of foreign stocks and bonds and \$489,000,000 of American securities formerly held abroad. Dr. Williams also obtained reports of credit and debit balances of these banks and concluded that the total debt due to the reporting institutions was something like \$628,000,000, which amount should possibly be doubled to allow for non-reporting banks.

P. 45 *British Foreign Investments.*—A. H. Gibson, a British financial writer stated in the early part of 1923 that British colonial and foreign investments at the end of 1922 were at least £2,500,000,000 compared with about £4,000,000,000 before the war; and that Great Britain is again increasing its foreign investments. It is estimated that the increase under this head in 1922 was about £50,000,000. Sir George Paish offers a different estimate, holding that Great Britain in 1922 had about £3,000,000,000 in good foreign investments, besides £2,000,000,000 in doubtful accounts.

P. 46 *Alien Property.*—The 67th Congress passed a law authorizing the return of seized properties not exceeding \$10,000 in value. The remainder, estimated at 275 to 300 million dollars, is to be held for the settlement of the war claims of American citizens against Germany. These American claims aggregate about one billion dollars, but a shrinkage to about 150 million in the final award is predicted. A mixed commission to pass upon these claims is now sitting.

P. 47 *American Speculation in Foreign Currencies.*—The estimate of \$600,000,000 for the end of 1920

appears conservative in the light of later information. There was, moreover, a great addition to the speculation in German marks in 1921 and 1922.

P. 54 *American Industrial Investments in Peru.*—W. E. Dunn, acting commercial attachè at Lima, reported at the end of 1922 that the American investments in Peru were estimated at \$90,000,000.

P. 62 *American Investments in Canada.*—The estimate appears to check fairly well with later data. The Bureau of Statistics of the Dominion recently reported the ownership of stocks and bonds of industrial concerns in Canada at the end of 1920. Out of the total of \$2,743,520,823 there was owned \$848,455,589 in the United States. The largest American investments were in the meat packing industry, in mining and smelting, and in the manufacture of electrical apparatus, automobiles, boots and shoes, paints and pigments and proprietary medicines, which are stated in the order of relative importance. The total is about \$100,000,000 lower than my estimate, but the difference may be easily ascribed to private loans, etc.

P. 65 *American Investment in Mexican Petroleum.*—According to a statement by the Department of Industry of the Mexican Government at the end of 1922, the total investment in the Mexican petroleum industry was \$525,000,000 (gold), whereof the American investment was \$303,000,000. The forecast of a probable great loss in the foreign investment in Mexican petroleum seems unfortunately to be coming true.

P. 68 *Foreign Commercial Investments Since 1920.*—French railroads in 1921–22 obtained about \$20,000,000 from the United States. The FramERICAN Industrial Corporation, \$10,000,000. Holland American Steam-

ship line, \$8,000,000. Paulista Railroad in Brazil \$4,000,000.

P. 71 *Commercial Investments in Russia*.—According to information to U. S. Department of State, reported by the *Wall Street Journal*, the New York Life Insurance Co. had \$33,000,000 in cash and securities in Russia, the greater part in railroad bonds. The National City Bank had \$34,391,000. The Singer Sewing Machine Co., \$98,000,000. General Electric Co., about \$2,000,000. Standard Oil Co. of New Jersey, a half interest in Nobels, acquired by purchase before the revolution. The Petrograd Institute of Economic Research recently reported the total of American investments in banking, industrial and trading establishments as having been about \$60,000,000, Jan. 1, 1917.

P. 81 *Gold Imports and Exports*.—The imports and exports of gold to and from the United States during the last three years were as follows:

<i>Year</i>	<i>Imports</i>	<i>Exports</i>	<i>Import balance</i>
1920	\$417,068,273	\$322,091,208	\$ 94,977,065
1921	691,248,297	23,891,377	667,356,920
1922	275,169,785	36,874,894	238,294,891

P. 91 *Value of Urban Real Estate*.—I think it is probable that my estimates of urban real estate are understated. The assessed valuation of the real estate in the City of New York is now about 10 billion dollars.

P. 136 *Automobile Industry*.—The forecasts respecting the automobile industry by myself and the two authorities cited have so far been flatly wrong. The reasons for prospects taking a different turn, perhaps but ephemeral, may be discerned in the discussion in Chapter XIII.

P. 144 *Shipping*.—If automobile forecast were wrong, that with regard to shipping has been unfortunately too true. With the present prospect of liquidation of the Government fleet it seems likely that the loss will prove to be even greater than was intimated. During the year ending June 30, 1922 the U. S. Shipping Board sold 59 steel ships of 359,577 deadweight tons for \$9,751,719, an average of \$27 per ton; and 28 wooden and composite vessels aggregating 98,918 deadweight tons for \$247,923. By executive order, a total of 36 ships of 274,434 deadweight tons were transferred to other government departments. At the close of the fiscal year the board had, to be disposed of, 1,686 steel, wood, composite and concrete ships, totaling 10,809,172 deadweight tons, classified as follows:

	<i>Number</i>	<i>Dwt. tons</i>
Steel cargo.....	1,256	8,537,675
Steel, combined passenger and cargo.....	44	506,807
Steel tankers.....	82	751,086
Steel refrigerator.....	13	91,183
Steel tugs.....	30*
Wooden cargo.....	225	828,385
Composite and concrete cargo.....	13	45,253
Concrete tankers.....	7	48,783
Wooden tugs and miscellaneous.....	16*
Totals.....	1,686	10,809,172

* No tonnage figures included for tugs.

P. 154 *Government Stocks of War Material*.—Another statement puts Government post-armistice stocks in France at about \$2,000,000,000 (subsequently sold to the French government). At home, about \$2,500,000,000. Subsequently transferred from war and navy to other government departments, about \$325,000,000. Sales to June 30, 1922, about \$875,000,000; average recovery, 45 per cent of cost.

P. 181 *Foreign Investments in Russia*.—From Russian official sources there has come the report that at the beginning of 1917 the total of foreign capital invested in Russia, exclusive of Poland, Lithuania, Latvia and Finland, was about two billion gold rubles, whereof Americans had put in about 118 million, which last is a little more than my estimate (see p. 71).

P. 195 *Wealth of Farmers*.—Dr. L. C. Gray of the U. S. Department of Agriculture at a meeting of the American Economic Association in December, 1922, presented a compilation and analysis of the wealth and indebtedness of the farmers of the United States. He computed the total farm capital as follows:

Real estate.....	\$66,316,002,602
Live stock and implements.....	11,608,097,736
Value of crops on hand.....	5,812,000,000
Value of growing crops.....	277,019,520
Miscellaneous supplies.....	300,000,000
Cash to run business.....	800,000,000
	<hr/>
Total farm capital.....	\$85,113,119,858

Of the above about 75 per cent was estimated as being owned by farmers and about 25 per cent by others. In addition he estimated that farmers owned cash, stocks and bonds, household goods, bills receivable (including mortgages) and miscellaneous other property (not including farm capital) to the aggregate of \$9,833,-737,258. This gives a combined credit of \$94,946,857,-116. Of this he estimated \$72,851,827,723 as belonging to farmers. He estimated their liabilities and net worth as follows:

LIABILITIES

Secured by farm real estate mortgage.....	\$ 5,967,384,775
Short-term indebtedness to banks.....	3,455,813,034
Other indebtedness.....	1,605,900,211
<hr/>	
Total liabilities.....	\$11,029,098,020
Total assets.....	\$72,851,827,723
Total liabilities.....	11,029,098,020
<hr/>	
Net worth.....	\$61,822,729,703

Dr. Gray estimates the net worth of full owners at an average of \$13,476; of part owners at \$12,829; of tenants at \$4,315; and of croppers at \$354. Nearly half of the total farm property not owned by farmers is held by retired farmers. It may be conjectured that the remaining ownership of farms is largely by local merchants and bankers who are keenly interested in farming.

P. 198 *Savings Bank Deposits*.—The figures cited here referred only to deposits in one class of banks. The aggregate of savings deposits is much greater. The savings bank division of the American Bankers' Association reported that there were 26,637,831 accounts aggregating \$16,618,595,000 in savings deposits in the United States on June 30, 1921; and 28,955,526 accounts aggregating \$18,087,493,000 on June 30, 1922. The tabulation for June 30, 1922, was as follows:

Mutual savings banks (complete).....	\$ 5,802,751,000
Other state banks (41 states).....	6,189,128,000
Trust companies (32 states).....	1,894,138,000
Private banks (14 states).....	123,106,000
National banks (complete).....	4,078,370,000
<hr/>	
Total reported.....	\$18,087,493,000

Investments in life insurance is economically of the same nature as savings bank deposits. According to

A. S. Wing, of the Provident Life and Trust Co., at the end of 1920 the 272 American life insurance companies had assets of \$7,319,997,019, which was contingently the property of over 40,000,000 policy holders. Of this great fund 32.29 per cent was invested in mortgages, divided about half and half between farm mortgages and the other kind made up of city, building, home and industrial loans. About 26 per cent was invested in railroad bonds and stocks. Loans on policies amounted to \$820,000,000 and investments in government bonds to \$772,000,000. The other investments were mainly in state, county and municipal bonds.

Of the same nature also is the investment in Liberty and Victory bonds, to a large extent. It was recently estimated by Treasury experts that as of June 30, 1922, there were at least 10,000,000 holders of these bonds.

In all of these forms of investment—savings bank deposits, life insurance and government bonds—there have been important increases since 1916. This does not reflect increase in the national wealth, which, as I have shown, did not occur in the period 1916–20 and to but relatively small extent in 1921–22. What it does show is a transfer of the titles to, or claims upon, the national wealth from one group of people to another, probably from a relatively small group to one that is very much larger. The last is indicated by the great number of savings bank accounts, government bond holders, etc. The depletion of the smaller class is much greater than the transfer to the larger class, the difference being measured by the decline in the national rate of saving from 15 per cent of the national income prewar to perhaps 7 or 8 per cent in 1920–22.

We may come positively to another conclusion. I have read somewhere that about one-half of the American homes are occupied by their owners. I can not verify this, but clearly the proportion must be large. Combining this thought with the wide distribution of savings bank accounts, life insurance policies, government bonds, and the stocks and bonds of corporations it is indisputable that the American people are preponderatingly property owners and *ipso facto* are capitalistic.

P. 199 *American Debt*.—The public debt of the United States, June 30, 1922, was \$22,996,416,115. The aggregate of the indebtedness of the states, counties, cities and towns, was estimated at \$8,000,000,000 (compared with \$8,321,896,658 in 1913). The indebtedness of the states alone, in 1922, was \$1,071,506,981, whereof \$367,687,100 has been incurred for highway construction.

P. 204 *American Army and Navy, 1917-19*.—The following statement was communicated in connection with a study of the plan for giving a bonus to the ex-soldiers and sailors:

Total number in service in army	4,262,105
Total man-day service, from April 5, 1917, to July 1, 1919 ..	1,427,325,000
Average days' service per man	334.89
Total deaths in service	115,252
Total number in service in navy	534,150
Average days' service per man in navy	325

P. 243 *Cost of the War to Great Britain*.—Sir Stanley Baldwin, chancellor of the exchequer, in parliamentary papers lately issued, stated that expenditures between April 1, 1914, and March 31, 1919, amounted to £9,590,000,000 (about \$45,073,000,000), and that the money was raised approximately as follows: Direct

taxation, £1,820,000,000 (about \$8,554,000,000); indirect taxation, £910,000,000 (about \$4,277,000,000); borrowing at home, £5,500,000,000 (about \$25,850,000,000), and borrowing abroad, £1,360,000,000 (about \$6,392,000,000). War loans to the allies and dominions, including unpaid interest to Feb. 28, 1922, is as follows: France, £584,000,000 (about \$2,744,800,000); Italy, £503,000,000 (about \$2,364,100,000); other allies, £841,000,000 (about \$3,952,700,000), and the dominions, £150,000,000 (about \$705,000,000); making a total of £2,078,000,000 (about \$9,766,600,000). Losses at sea in shipping cargoes represented about £750,000,000 (about \$3,525,000,000), and 22,000 civilian lives were lost by the enemy's action.

P. 247 *War Losses in Killed and Wounded*.—General von Altrock, a German statistician, has given later estimates for German losses. The Central Records Office of the American Expeditionary Forces gives figures for the United States and other countries, which differ more or less from those of the British premier. These later figures are summarized as follows:

	<i>Dead</i>	<i>Wounded</i>
United States.....	50,327	205,690
Great Britain.....	692,065	2,037,325
Italy.....	364,000	947,000
France.....	1,385,000	2,675,000
Russia.....	1,700,000	4,950,000
Austria-Hungary.....	800,000	3,200,000
Germany.....	1,808,548	14,246,779

Sir Stanley Baldwin, in recent parliamentary papers, put the losses of the United Kingdom at 743,702 killed and 1,693,262 wounded; and of the British Empire at 946,023 killed and 2,121,906 wounded, out of a total enrollment of 9,496,370 in all branches of the service.

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