Technological Trends and National Policy. National Resources Committee. U. S. Government Printing Office. Washington, D. C. 1937 (X and 388 pp; $1.00)

Consumer Incomes in the United States. Their Distribution in 1935-6. National Resources Committee. U. S. Government Printing Office. Washington, D. C. 1938. (V and 104 pp; $0.30)

Leven, Maurice, *The Income Structure of the United States.* The Brookings Institution. Washington, D. C. 1938 (X and 177 pp; $1.50)

Studies in Income and Wealth. By the Conference on Research in National Income and Wealth. 3 vols. National Bureau of Economic Research, New York, Macmillan and Co., London 1937-39. (XVIII and 348 pp; XII and 331 pp; XXIII and 479 pp; $2.50, $3.00, $3.50 together $7.50)

Means, Gardiner C., *Patterns of Resources Use. Submitted by the Industrial Committee to the National Resources Committee.* U. S. Government Printing Office. Washington, D. C. 1939 (V and 149 pp; $3.50)

Means, Gardiner C., *The Structure of the American Economy.* Part I: *Basic Characteristics.* National Resources Committee. U. S. Government Printing Office. Washington, D. C. 1939. (VII and 395 pp; $1.00)

Does Distribution Cost Too Much? Factual findings by Paul W. Stewart and J. Frederic Dewhurst with the assistance of Louise Field. A program for action by the Committee on Distribution of the Twentieth Century Fund. New York 1939. (XVII and 403 pp; $3.50)

Ezekiel, Mordecai, J. B., *Jobs for All.* Alfred A. Knopf. New York 1939. (XIII and 299 pp; $2.00)

Kuznets, Simon, *Commodity Flow and Capital Formation.* vol. I, National Bureau of Economic Research. New York 1938. (IX and 505 pp; $5.00)

Fabricant, Solomon, *Capital Consumption and Adjustment,* National Bureau of Economic Research. New York 1938. (XX and 271 pp; $2.75)

Bliss, Charles A., *The Structure of Manufacturing Production.* National Bureau of Economic Research, New York 1938. (XVII and 231 pp; $2.50)

Conference Board Studies in Enterprise and Social Progress. National Industrial Conference Board. Division of Industrial Economics. New York 1939. (XVI and 327 pp; $5.00)

The inability of private enterprise to overcome, by the use of the traditional methods, the depression brought about by the crisis of 1929, forced the U. S. A. Government to interfere in most sections of the economic process.

The lack of dependable data for constructing a program of economic policy led to an intensification of research into the structure of the American economy. Among the most outstanding studies were those published in 1934 and 1935 by the Brookings Institute, on America's capacity to produce and to consume, and on the formation of capital. In these studies, an attempt had been made to deal with decisive economic problems from the viewpoint of the whole economy.

The studies of the National Resources Committee (N. R. C.), published during the last few years, are based on a rich variety of materials as is accessible only to a Government committee vested with a far-reaching authority. The present results, incomplete as they may be, afford an insight not hitherto attained into the structure and trends of the American economy. The report on *Technological Trends and National Policy* discusses, in three parts, the problems of technological progress. Part I deals with important social aspects, such as the resistance to the application of new inventions (Bernhard J. Stern), and technological unemployment (David Weintraub). Part II gives a summary treatment of the relations between science and technology, while Part III describes the state and trend of technological progress in the decisive branches of industry. The report on future technological trends is based upon the assumption that there is normally an interval of about 30 years between the beginnings of an invention and its social effects. If serious disturbances and technological unemployment are to be avoided, we must now initiate measures to mitigate and harmonize the probable consequences of such inventions as the mechanical cotton-picker, tray agriculture, pre-fabrication of houses, liquefying coal, etc. For the better coordination of these measures, the creation of a permanent central planning office is recommended.

The need for State intervention becomes obvious if one compares the situation at the time of the introduction of the power-loom in England during the 1820's, with the situation that would arise if the mechanical cotton-picker were to be generally applied. The setting free of the weavers by the power-loom was bound up with poverty and starvation for countless people throughout the world. Yet at that time there was a chance for many of them to find employment in the rapidly expanding economy of the 19th century. The mechanical cotton-picker picks about as much as do 40 hand-pickers. What is to become of the 75% of the labor force in the Southern cotton country that would be displaced by the machine as soon as a few further improvements have been achieved? It is possible that a small number of them will find jobs as tractor-drivers and in repair stations, and that some others will be members of the families of those who have found new and better-paid employment. But what is to become of the displaced people who are first going to increase the existing mass of unemployment? Cotton is already so cheap that the general introduction of the mechanical picker can hardly bring about a significant reduction in the prices of the finished product. Consequently, no substantial share of the purchasing power now available for textiles can be transformed into new demand. No "compensation" on a large scale can be expected. Here, as in many other instances, we shall have a situation that can be mastered only by the State and by means of public works.

The report of the N. R. C. on *Consumer Incomes in the United States* from July 1935 to June 1936, provides the first authoritative presentation

of the distribution of incomes in the U. S. A. In addition to the income tax material, it is also based on the questionnaires of 300,000 families extending over the whole U. S., and on a small sample of persons living outside of families. Of the 29.4 million American families, 97.3% had less than 5000 dollars income a year (per family) during the period of the report. The total number of families and of persons living outside of families, together comprises 39 million consumer units. This figure is divided into three income groups: the lower third with a yearly income up to 780 dollars; the middle third with an income from 780 dollars up to 1450 dollars; and the upper third with an income above 1450 dollars. (All income groups refer not to income per capita, but per consumer unit: a family with many children counts as one unit only, and the pooled income of several members of the same family living in one household is likewise considered as one income unit.) During the comparatively favorable year of the report, about 15% of the 29.4 million families were receiving public relief, either in the form of direct relief or of work relief, for at least one period during that year.

The report is a striking illustration of the thesis that in the richest country in the world there is scarcity in the midst of plenty, despite a hitherto unheard of capacity to produce. The opponents of the Government maintain that this peculiar situation is the result of too much Government interference. But the real cause lies much deeper. We have reached the stage when the customary market economy no longer operates effectively and when the scattered attempts to reorganize the system have not yet begun to work.

Shortly before the publication of the N. R. C. report, the Brookings Institute issued a small book on the *Income Structure of the United States* in the years of 1929-37, a by-product of the above-mentioned larger investigations. As it describes the income movement over a period of 8 years and contains material not included in the N. R. C. report, it is a valuable supplement to that report. The estimates in the two studies have been computed by different methods and are therefore comparable only with certain reservations and after some corrections.

While those two studies are primarily statistical in character, the *Studies on Income and Wealth* published in 1937-39 by the National Bureau of Economic Research represent an attempt at cooperative research in fundamental problems of economic methodology. Each individual study has an appendix containing an intensive discussion by other experts of its results and methods. Volumes I and II deal with the concepts of national wealth and income as a whole, as well as with the different methods of their computation. Volume III discusses the questions which arise when dissecting the methodological and statistical concepts into their components. The previous attempts at the conceptual and statistical clarification of words hitherto used both frequently and vaguely, have been analysed with the utmost care. The aim of the studies is to create "efficient tools for economic analysis and social planning" by a thorough clarification of concepts and by comprehensive empirical investigation.

The study of *Patterns of Resources Use*, carried out under the direction of Gardiner C. Means, attempts to construct models describing the conditions for the exploitation of all existing resources. The relations between full employment, the volume of production, and consumer income are demon-

strated statistically for the American economy as a whole as well as for its branches. In contrast to technocratic calculations, this study does not base its computations on the most advanced technical possibilities but starts from the given production capacities and the trends which have become visible in the past two decades. The authors realize, of course, that their starting point forces them to construct such models as include productivity losses deriving from "the failure to use the best available techniques, from the duplication of effort, and from competitive wastes." Despite uninterrupted changes occurring within all branches of the economic process, such computations can be made because there are relatively constant relations within and between the separate branches of the economy on the one hand, and the national income on the other. These relations exist not only between raw materials and finished products, but also between "such apparently unrelated items as shoe production and automobile production or between shoe sales, passenger traffic on the railroads, gasoline consumption and school attendance."

With the help of ingenious formulae which were computed for each of the important segments of the American economy, series of figures were compiled for the years 1920-37. Each of these formulae expresses a definite economic quantity as a function of other quantities. Thus (to give only a few examples) the consumption of telephone calls, automobile transportation, dairy products, tobacco, etc. is expressed as a function of the consumer income and of a time trend varying with each commodity. A comparison, documented in all details, between the computed figures and the empirical statistics, leads to the striking result that more than 4/5 of the computed curves correspond with those found empirically. Even during the last 5 years, for which period the preceding trend was extrapolated without recourse to any empirical material, 82 of 138 analyses show less than 5% deviation from the actual statistics. The computations must, however, fail in all cases where structural changes occurred, such as the number of persons employed in the civil service or in the banks after 1932. After functional dependencies within and between 81 segments have been established statistically, an attempt is made to construct models for a particular relation: how large would be employment and consumption for each segment in six different cases of national consumer incomes between 50-100 billion dollars a year? It is found that with a yearly consumer income of 88 billion dollars (purchasing power of 1936) unemployment would practically disappear. (As a comparison it may be noted that the figure of 88 billion dollars is about 30% above the figure actually reached in 1937). The individual figures within the "models" deserve careful study. Thus, with a consumer income of 100 billion dollars, the number of persons employed by the Federal Government and in agriculture is given as being not larger than with a consumer income of 50 billion dollars, while employment in commerce and industry increases in about the same proportion as the income. It must be left for more detailed investigations to judge the extent to which the N. R. C. succeeded in overcoming the immense obstacles in the way of such computations. The present results, however, show the great steps made in the direction of a planned economy since the publication of Ballod's *"Zukunftsstaat."*

The investigations of the N. R. C. culminate in the report on the *Structure of the American Economy*, published in the summer of 1939.

The Committee calls it "the first major attempt to show the inter-relation of the economic forces which determine the use of our national resources."

The reason why such an attempt was not made until now is clear if one realizes that a knowledge of the structure becomes indispensable as soon as an organism or a machine no longer functions properly. To drive an automobile, it is said, one need only know how to handle the operating controls, but as soon as there are any disturbances, one must have a knowledge of the construction in order to make the necessary adjustments. The same holds true of a national economy: as long as it continues to function, the knowledge of its structure is of secondary importance. But now, it is said, it is necessary to make far-reaching adjustments and therefore one can no longer manage without an accurate knowledge of the structure.

Today the decisive problem of national economic policy is how to use all existing resources as completely and efficiently as possible, while preserving a maximum of the traditional political values. These values are said to be in serious danger if the first requirement is not fulfilled. How far reality is lagging behind the goal is demonstrated by a computation of the amount of waste from 1930 to 1937. Assuming that during that period all existing means of production and all available labor power, with the exception of 2 million unemployed, had been in full operation, the social product would have been larger by 200 billion dollars in commodities and services (expressed in the purchasing power of 1929) than it actually was. In other words, the loss of potential real income attributed to the unemployment of men and machines during the last depression is calculated as being equal to five times the cost of construction of the entire railroad system of the United States. This is the comparative figure given by the N. R. C. The figure of 200 billion dollars becomes even more impressive if one realizes that it is about twice the amount of all capital goods (plant and equipment = 105 billion dollars) invested in American industry by 1935, including mining, railroads, and other utilities.

The report considers the structure of the American economy under three main headings: the structure of needs and resources; the geographic, functional, and financial structure of production; and, finally, the organization of economic activity. The most impressive material is contained in Chapter III. A characteristic feature is its skepticism regarding the market as the organizer of the economy. "In theory it is possible to show that, under certain conditions, the market mechanism might, by itself, have sufficient organizing influence to produce effective use of resources. In the case of a great many commodities, however, free markets do not and usually cannot exist, and the market mechanism acts only crudely, slowly, and not too effectively in bringing basic organization into the use of resources. Administrative coordination has become of increasing importance as an organizing influence. A century ago, when business enterprises were small and government activity was relatively less important, the market played a major coordinating role. But during the past hundred years great segments in the organization of economic activity have gradually but steadily been shifted from the market place to administrative coordination." This chapter deals in great detail with the centralization and concentration of American industry, with price control by the large corporations, and with the structure of control over production and the market which is exercised by relatively few groups. Among the results it may be mentioned that in

1932 the 200 largest non-financial corporations controlled about one fifth of the national wealth, about one half of the nation's industry and about 60% of the assets of all non-financial companies. More than 45% of all real estate, buildings, and machinery which had been invested in industry, were owned by the 75 largest industrial concerns. It is particularly noteworthy that during the depression the share of the 200 largest non-financial corporations in the assets of all non-financial companies increased from 58% to 64.2%. Small enterprises are mainly found in the retail trade, the service industries and the building trade. The report goes on to show that next to the large enterprises there were still other forces which more and more reduced the importance of the market in the economic process, namely the large pressure groups (business, workers, farmers, consumers) and, finally, the Government itself.

An important supplement to this report is a study by the Twentieth Century Fund, intended to give an accurate picture of the distribution system in the United States and to make suggestions for improvement. The question raised in the title, *Does Distribution Cost Too Much?*, is answered in the affirmative. By how much the costs of distribution are too high is hard to express in figures. Yet what can be proved is that there is waste in countless segments of the process of distribution. The tendency to increase the share of distribution costs in the sales-price is characteristic of the present phase of capitalism. Though, if looked at from the viewpoint of the economy as a whole, it means an increase of unproductive expenditures, this process has provided for the employment of part of the labor power set free by the machine. Assuming the figures for 1870 to be 100, the population increase by 1930 was 318 and the increase of persons employed in production was 287, while in the same six decades the number of those employed in distribution had grown to 877. In the last decade this discrepancy has become even more acute. The distribution apparatus has grown further while the absolute number of persons employed in agricultural and, recently, in industrial production, is decreasing. Another example of the size of unproductive expenditures is given by examining the share of distribution costs in the expenditures of the "ultimate" purchaser. In 1929, 65.5 billion dollars were paid for finished goods (industrial and agricultural). Of this amount about 59% represents distribution costs and only 41% production costs. That is, it costs about 50% more to distribute the goods than to produce them. Of the distribution costs only about one fourth is on account of transportation. The long list of causes which the study of the 20th Century Fund presents in order to explain this situation, expressly omits the profits of the distribution agents. Not they, but the institution and methods of free competition cause most of the unproductive expenditures. This study confirms that the more modern methods of distribution which are subject to limited competition, generally operate much more cheaply than their obsolete predecessors. Appended to this work is a very impressive graphic demonstration of the flow of goods. The graph is proof of the enormous progress made in the construction of a *tableau économique* with the aid of statistics and methods available today.

An attempt to meet the problem toward the solution of which the studies of the N. R. C. were intended to contribute, has been made by M. Ezekiel, chief economic advisor of the Department of Agriculture. His book, *Jobs for All*, aims at providing work for everyone without changing

the foundations of the present order. He calls his program industrial expansion and defines it as a planned expansion of industrial production until full employment is reached. The complete plan is to be worked out on the basis of individual plans which would be constructed by the key industries. The central planning office would be constituted of representatives of the labor unions, the management, the consumers, and the Government. The coordination of the individual plans in a complete plan would provide for the marketability of the large majority of all products. A guarantee by the Government to take over, at a small price reduction, the unsold part of the expansion program, should limit the risks of the entrepreneur to such an extent that he would cooperate in the expansion plan without being forced to do so by law. Full use of capacity, and thereby smaller costs per unit, would make it possible to lower the prices and to increase both the yearly income of the workers and the profits. To implement this plan would require extensive preparation, lasting many years, possibly a decade or even longer. Once put in operation, however, this program would soon increase the national income to those 100 billion dollars which correspond to the full employment of all the existing factors of production. Overproduction would be impossible for a long time in view of the low (i.e. low, compared with what it might be) standard of living of two thirds of the population. The danger of technological unemployment could be decreased by a corresponding shortening of the workday and by an extension of compulsory education. By means of a flexible system of quotas the advantages of competition could be preserved in some industries. Other industries would for some time to come not partake in the expansion program at all, and competition would be the sole regulator there. The author maintains with great emphasis that his program is not socialistic, and that it is rather superior to both a bureaucratic socialism and a planless capitalism. The task of the book, which is to remove the intolerable waste of the present system without giving up even part of its foundations, makes the author quite uncritical of his own contradictions.

Important studies preparatory to the investigations of the N. R. C. have been made by others, especially by the National Bureau of Economic Research. One of its recent publications, the book by S. Kuznets on *Commodity Flow and Capital Formation*, deals with a field fundamental for the knowledge of the economic structure. The process of the circulation of capital, which Marx, 80 years ago, attempted to analyze theoretically in the studies that provided the material for the second volume of *Das Kapital*, is described in Kuznets' book by means of an immense statistical apparatus. Marx' sections I and II reappear in the division of consumers' goods and producers' goods, the former again being sub-divided into perishable, semi-durable, and durable etc. But while Marx was concerned with demonstrating certain correlations, Kuznets attempts to describe the empirical processes with all the available material and with the most modern statistical methods. He is thus frequently forced to make use of somewhat arbitrary estimates. In the first result he arrives at a presentation of the relations between gross social product, national income, consumption, replacement of equipment, and formation of capital.

S. Fabricant regards his own book on *Capital Consumption* as an appendix to Kuznets' study. Fabricant uses great ingenuity in developing methods for the computation of three factors, two of which determine the

third: gross capital formation minus net capital formation equals capital consumption. The investigation is limited to the measurement of the consumption and adjustment of fixed capital. In 1929, 60% of the production of durable goods was used for replacing fixed capital. A list of the main difficulties which had to be overcome in this study gives an idea of the scope and limitations of the work. Fabricant mentions the following: difference between "economic" and "physical" life of plant and equipment; allocation of the consumption of durable capital goods to arbitrary time units; problem of price changes; adjustment of accounting methods as practiced by business and required by law, to the concepts of this investigation; significance of "maintenance" and "repair" expenses, etc.

The National Bureau of Economic Research has also published a study by Charles A. Bliss, on the *Structure of Manufacturing Production.* Bliss attempts to calculate the proportions in which the existing resources were used in 1929 in the field of industrial production. The division into groups is the same as in the other studies of the National Bureau. Bliss, too, had to overcome the manifold difficulties arising from the fact that his statistical material was computed from different viewpoints. Among the results it is particularly characteristic that about one tenth of all employed persons and one tenth of all capital invested in the whole of industry in 1929 were employed in the automobile industry. Bliss points out that a series of comparable studies of the structure of industry, undertaken over a period of years, would greatly enrich our knowledge of the business cycle and thereby also of the more adequate use of existing resources.

The writings reviewed above are essentially the works of "technicians" who are interested in the most rational application of all resources and are prepared to make far-reaching adjustments in the present economy in order to reach their aim. The large reference work of the National Industrial Conference Board suggests even in its title, *Enterprise and Social Progress,* that only the preservation of the traditional economic system can guarantee an optimum of social progress. This propagandistic attitude does not manifest itself in less reliable statistics. It is apparent, however, in the distribution of light and shade. All achievements are attributed to the system of free enterprise while all the negative factors are both minimized and ascribed to outside interference. The work is an important supplement to the official statistics, and the editors rightly call it the largest collection of systematic information on American private enterprise.

The studies reviewed here afford a methodologically and materially impressive picture of the comprehensive scientific preparation that would be at the disposal of a strictly "State-capitalistic" economic policy in the United States.

FREDERICK POLLOCK (New York).

Ayres, L. P., *Turning Points in Business Cycles.* The Macmillan Company. New York 1939. (214 pp; $2.75)

The author's investigation is deliberately empirical. He does not construct a theory of the business cycle, the assertions and results of which would then be compared with reality, and in which statistics would be merely auxiliary. Instead, he tends to impute to statistics the rôle of a decisive source of proof. From statistical tables and diagrams covering a