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I. Our Fifteenth Year

NINETEEN hundred and thirty-four in the National Bureau of Economic Research has been a year of substantial accomplishment, evidenced to the world at large by books and bulletins, but known in full only to this inner circle. We have had better physical equipment than hitherto, we have been free from financial anxieties; researches which we had carried on for several years yielded their harvests. Early in the spring we moved our offices to quarters that are better adapted to our needs than any we had previously occupied; the arrangement of the space has afforded us facilities for efficient work and for the additional research assistants required to carry forward the program outlined in last year's annual report. We published more volumes in 1934 than in any earlier year and the progress made in the various sections of our program gives us prospect of at least maintaining this publishing pace in 1935.

Our chief embarrassment has arisen from government drafts upon our staff and collaborators. Dr. Leo Wolman was serving as Chairman of the Labor Advisory Board of the National Recovery Administration when the year began; later he became Chairman of the Automobile Labor Board in Detroit. Dr. Frederick C. Mills was chairman of the Committee on Government Statistics and Information Services sponsored by the Social Science Research Council and the American Statistical Association, of which he was president in 1934. Dr. Simon Kuznets was still consulting with the Department of Commerce upon income estimates in the winter and spring. Your Director of Research served as a member of the National Planning Board and of its successor, the National Resources Board. Federal appointments also

postponed the completion of Dr. Willard L. Thorp's history of income estimates and of Dr. A. G. Silverman's study of British foreign trade, and delayed somewhat the publication of Dr. Ralph C. Epstein's *Industrial Profits in the United States*.

That the Federal government makes so many demands upon our staff members and collaborators is a tribute to their standing as authorities in their several fields. We recognize also that participation in governmental work brings fresh information, wider contacts and often keen insights into economic problems. In the long run the National Bureau gains from the public service rendered by its investigators; but, in the short run, its plans suffer interruptions and delays. That we have been able to accomplish a good year's work despite these embarrassments is due to the scientific zeal of our staff, advance planning of finances by our Executive Committee, and the generosity of donors.

II. Researches in Progress

INCOME

Estimates of National Income

EARLY in 1932 the United States Senate called upon the Department of Commerce to prepare estimates of the national income in 1929, 1930 and 1931. In view of the National Bureau's earlier work in that field, the Department invited our cooperation. The arrangement made was that Dr. Simon Kuznets should be "retained by the Bureau of Foreign and Domestic Commerce to plan and supervise this study". As a formal "Acknowledgment" put it: "Dr. Kuznets, who was in full charge of the work, was responsible for the preparation of the final estimates, as well as the organization and the text of the report." The Department also acknowledges "extremely generous assistance" by several other members of the National Bureau's staff, particularly Miss Lillian Epstein and Miss Elizabeth Jenks.

The report was completed late in 1933 and sent to the Senate on January 3, 1934. On January 26 we issued a *Bulletin* giving a summary of the estimates. In April the full report was published under the caption, *National Income, 1929-1932* (*Senate Doc. 124, 73d Cong., 2d Sess., 261 pp.*). By June the January issue of our *Bulletin* was exhausted, so we issued a second *Bulletin* giving the final estimates as they appear in the Senate document.

Although this report upon national income is not technically one of the National Bureau's volumes, our share in its preparation was so considerable and our interest in the results so keen that we procured a sufficient number of

copies for all our subscribers, and had them bound uniformly with our series of publications.

What our relation to the work of estimating the national income in years following 1932 shall be is not yet determined. The usefulness of these estimates for many purposes, practical and scientific, private and public, has been widely recognized since 1921 when we published our first report: *Income in the United States: Its Amount and Distribution*. There is no longer any question whether it is worth while to make such estimates. But how and by whom the estimates can best be made is a very important question. The work requires a special combination of economic theory, statistical skill, knowledge of varied types of data, enterprise, and good judgment. New materials are continually becoming available that can be used to revise past estimates and to improve current figures. Improvements upon the best that has been done so far are needed in the direction of breaking down global entries into their constituent elements, of combining the items in fresh ways, and of learning more about the personal distribution of incomes, particularly of incomes below the limits subject to Federal tax. If the work is reduced to routine on the basis of formulas followed without change year after year, it will fall far short of what is needed. In one important respect, a Federal bureau should be in a better position to cultivate this field than any other agency; for if proper connections are established with other Federal bureaus, the income-estimating unit should have access to data that could not be made available to a private organization. But it has not yet been demonstrated that any Federal bureau has personnel that meets the exacting requirements. In the hope that the Department of Commerce will develop or find men of the requisite skill and enterprise, the National Bureau is making no estimates of national income for 1933 and 1934, and is leaving to the Department the task of revising, on the basis of recent census and income-tax reports, the preliminary figures for 1932 contained in the Senate document.

Meanwhile, Dr. Kuznets and his assistants are revising the estimates of national income published by the National Bureau for the years 1909-28. New data that have recently become available—notably the Censuses of Distribution and of Construction—new methods that have been devised for estimating some of the old items, and a more detailed industrial classification make it possible to improve upon the results obtained by Dr. King. Manufacturing is being subdivided into fifteen, and mining into five branches, while merchandising is being separated into wholesale and retail trade. It is not possible to carry this detailed mode of treatment farther back than 1919; the estimates for 1909-18 must be based upon a smaller number of categories. The revised figures for 1919-28 will soon be finished. It may seem desirable to publish them promptly, together with figures for 1929-32 taken from the Senate document, with the latest available revisions and extensions made by the Department of Commerce. As all who have made use of income estimates realize, the value of the figures lies less in the results announced for any single year than in comparisons of the results for different years. The longer the time span covered by these comparisons, the more significant are the conclusions that can be drawn. Hence the effort to improve upon our earlier results has much more than an historical interest. It lends new meaning to the figures for the latest year. In addition, estimates of national income are an invaluable aid in many investigations directed toward other problems, and for that reason also should be made as reliable and detailed as the underlying data admit of.

One of the National Bureau's long cherished hopes has been to secure greater comparability among the estimates of national income compiled for different countries. The figures now available are based upon concepts of income that differ in significant ways and upon classifications that are baffling in their variety. In some countries the definitions followed are not stated and the methods of compilation are left exceedingly vague. In an effort to promote cooperation

among statisticians concerned with income estimates, we requested Dr. Kuznets to attend the meeting of the International Institute of Statistics in London last April. He presented a carefully drawn analysis of 'Current Problems in Measurement of National Income', concluding with the statement that, in the "task of bringing effective international collaboration to pass, the National Bureau of Economic Research stands ready to assist as best it can". What fruit this effort will bear remains to be seen.

Studies of Professional Incomes

One of the by-products of our work with the Department of Commerce was permission to analyze some 9,000 questionnaires showing the incomes of physicians, dentists, lawyers, accountants and consulting engineers in 1929-32. The returns collected from lawyers were found to be biased by a defect in the method of sampling; but those from the other four professions have proved satisfactory. The laborious job of tabulating and classifying the data has been completed and Dr. Kuznets' assistants are now preparing tables that summarize the results. For each of the four years covered, these tables will show the average size of the gross and the net income of each profession, the dispersion, differences between incomes in different regions and in towns of diverse sizes, the degree of inequality in the distribution of net incomes, and the persistence from one year to the next of individual incomes in their rank in the distribution.

We have envisaged this study as an experiment preparatory to a larger investigation of the frequency distribution of personal incomes—a problem with which Dr. Macaulay dealt effectively in our second report published in 1922, but with which we have done little since. The scope of the experimental study is elastic in that it may be confined to the four professions mentioned or extended to cover whatever samples of incomes in other professions are available. Which mode of treatment is wise can best be decided after the summary tables have been completed.

WAGES AND LABOR PROBLEMS

Though Dr. Leo Wolman's public service prevented him from giving much time to the National Bureau in 1934, his assistant, Miss Eleanor Frankel, has carried forward the systematic collection of materials bearing upon the American labor market. Through recently created Federal agencies, much new information has been made available concerning the dramatic changes that have occurred of late in wage rates, hours of labor, the membership and status of trade unions.

On January 1, 1935 Dr. Wolman's leave of absence expired and he resumed his duties upon our staff, his past experience with labor organizations enriched by his recent experiences as a government official. His program for the year includes first, the preparation of a *Bulletin* upon recent changes in wages and hours; second, completing a monograph upon *Movements in Trade Union Membership since 1923* (the last year covered by his monograph, *The Growth of American Trade Unions*, Volume 6 of our series; third, his comprehensive study of wage rates and working hours, which he hopes to have well started by the end of the year.

Our publication of Dr. Harry Jerome's *Mechanization of Industry* gives what we believe to be the most thorough, judicious and trustworthy analysis yet made of the effects of mechanization upon the volume of employment, upon the skill required by workers, upon fatigue, health, quality of products and various other factors. As Dr. Mills says in his prefatory statement, Dr. Jerome "provides an effective corrective alike for the visions of doom and for the prophecies of a mechanical millennium".

PROFITS OF BUSINESS ENTERPRISES

Dr. Ralph C. Epstein's *Industrial Profits in the United States*, published late in 1934, aroused keen interest among our Directors and should do the like among readers at large. Based as it is upon the best sample of corporation statements

yet obtained for study, the book makes a notable contribution to the difficult problem of measuring the profits of business enterprises.

Our second venture in this field, Dr. W. A. Paton's *Corporate Profits as Shown by Audit Reports*, has just been sent to the press. For the financial statements analyzed by Dr. Paton the National Bureau is indebted to the American Institute of Accountants. Though the number of corporations covered is smaller than that in Dr. Epstein's sample and the period shorter, the individual statements give fuller details. The preface by Mr. George O. May points out that much might be learned about the workings of our economic system if a broadly representative sample of audited financial statements could be made available for analysis year after year.

Besides these two books, the National Bureau issued a *Bulletin* last April on *Recent Corporate Profits in the United States*. This interesting analysis was prepared by Mr. Solomon Fabricant, who also rendered valuable help in preparing Dr. Paton's manuscript for publication.

THE FORMATION AND CONSUMPTION OF CAPITAL

As reported last year, "at the request of a Committee on Banking and Credit appointed by the Social Science Research Council and presided over by Dr. David Friday, our Executive Committee authorized Dr. Kuznets to undertake a study of the production and disposition of durable commodities in the United States, as one way of measuring the formation of capital". This study broadened into an investigation of the durable, semi-durable and perishable goods produced for consumers and for producers in the years 1919-33, as valued both in current and in constant prices. A set of preliminary tables and memoranda containing the leading results was presented in May to the Social Science Research Council and given a limited circulation. In November we published a *Bulletin* which made the preliminary

estimates available to the public. Since then, Dr. Kuznets and his staff have been checking the basic estimates derived from the Census of Manufactures and bringing the figures closer to date by using the Census of 1933. It remains to make a more intensive study of distributive margins with respect to their variations from good to bad years, to refine upon the preliminary estimates of the volume of construction, and to approximate roughly the consumption of durable goods. Without the last step the results will show only the gross formation of capital and may give rise to misinterpretations, however carefully the figures are explained. Even rough approximations to the consumption of durable commodities of different types will be a valuable step toward determining the net growth of capital goods. Dr. Kuznets hopes that the statistical work can be completed before summer. Then he plans to start his final manuscript. The importance of the problem and the interesting character of the preliminary results published in our November *Bulletin* are ample warrant for our effort to perfect this study.

Encouraged by the success of Dr. Kuznets' work, Dr. Friday's committee suggested that the National Bureau be requested to make the next study in their program, and the Social Science Research Council has made an appropriation for that purpose. The committee calls this project 'Real Estate Financing and Economic Stability', and gives the following reasons for treating it as a quasi-independent inquiry:

The financing of real estate, urban and agricultural, is a special field with its own modes of operation and its own standards of judgment. It is quite distinct from financing operations in the organized markets where stocks and bonds are bought and sold. This is a field which has not yet been organized by a comprehensive generalizing study covering the situation on a national scale. Meanwhile new and comprehensive information from government sources awaits analysis in terms of the general picture, with little prospect that such analysis will be adequately provided through official channels. A systematization of this field and the work hitherto accomplished, like the early studies of the national income, should lay the ground for fruitful work in the future.

Among the topics to be covered are the volume of rural and urban mortgage credit outstanding; the current changes in this volume; the sources of real-estate credit; the purposes for which real-estate owners borrow on mortgage; the cost and other conditions of the loans; the risks of real-estate mortgage finance; effects produced by expansions and contractions in the real-estate mortgage structure, and the organization of the market for real-estate mortgages.

After consulting with Dr. Friday we engaged Dr. David L. Wickens as chief investigator. Dr. Wickens has been working for several years upon the farm-mortgage data collected by the Census, the Farm Credit Administration and the Bureau of Agricultural Economics. More recently he has been supervising the analysis of some 350,000 questionnaires concerning urban real-estate financing in sixty-five cities obtained by the Real Property Inventory—a Civil Works Administration project sponsored by the Department of Commerce. Dr. Wickens wished to see this analysis completed before he undertook a new responsibility. That task occupied him until the end of 1934; on the first of January he was ready to begin his work for the National Bureau, most of which must be done in Washington where the data are readily available.

A third study bearing upon the capital resources of the country has been approved in principle by the Executive Committee. It is an attempt to learn what we can about the negative items in the nation's capital account. These items include such diverse matters as depreciation and depletion charges, loss on sale of capital assets, payments by companies that insure against destruction or loss of property, repairs and renewals, shrinkages in stocks of goods, 'write-downs' of assets, and insolvencies. That the aggregate amount of capital which disappears in these ways is huge and variable everyone knows; how great it is and how much it varies we can only guess. Yet even the most perfect statistics of savings, investments or gross capital formation will tell us little about net changes in our capital account until we can approximate

capital losses. Our tentative caption for this study is 'Capital Consumption'. The investigator in charge is Mr. Solomon Fabricant who has for several years been one of Dr. Mills' research assistants. We expect that the work will occupy at least two years.

BOND YIELDS, INTEREST RATES AND SECURITY PRICES

Dr. Frederick R. Macaulay has made some further improvements during the past year in his slowly evolved analysis of bond yields, and their relations to short-time interest rates, commodity prices and stock prices. Several times this notable manuscript has been thought almost ready for publication; but each time the author discovered important changes that should be made and convinced your Director of Research that postponement would enhance the ultimate value of the work. Even now, Dr. Macaulay is far from satisfied with his analysis and would like to take more time for reflection and revision. To decide the precise point to which efforts to perfect a piece of scientific work should be carried is a responsible and a delicate task. The task is particularly difficult in the case of an investigation so highly original and so far-reaching in its implications as the one under consideration. All of us must respect Dr. Macaulay's ardent quest of perfection and none of us can judge the possibilities of further advances in his own thinking as well as he. But urgent inquiries concerning this investigation, and requests for permission to use certain of the partial results in treating scientific or practical problems, keep us reminded that while further postponement may improve our report, it will impede research elsewhere. The responsibility of deciding what we should do in such cases rests primarily upon the Director of Research. After much consideration he has had Dr. Macaulay's manuscript mimeographed and sent to the Directors of the National Bureau. Those of us who have had an opportunity to read the text recognize its distinguished character.

PRICES AND PRODUCTION

Dr. Frederick C. Mills reports upon the work of his unit in 1934 as follows:

During the current year we have carried forward the two related lines of investigation on which we have been engaged for some time. Our continuing series of measurements of price changes have been kept up, and the index numbers of production and productivity which were first constructed for publication in *Economic Tendencies* have been extended. Certain of our results have been published in two of the *Bulletins* issued during the year ('Recent Changes in Production', by Charles A. Bliss, and 'Changes in Prices, Manufacturing Costs and Industrial Productivity, 1929-1934', by Frederick C. Mills).

Our major efforts have been directed toward the completion of a report centering upon price aspects of the recession and recovery, with such treatment of production movements and changes in purchasing power as may be necessary to round out the discussion of price changes. This study was first thought of as a rather brief monograph, an extension and elaboration of the price bulletins we have prepared from time to time. As the work has progressed, however, an expansion of the scope of the enterprise has seemed unavoidable. With the initiation by the Federal administration of definite efforts to find some solution of depression difficulties through monetary action, changes in commodity prices have moved toward the center of the economic stage. This development required somewhat more extended treatment than we had first planned. We have felt, moreover, that the treatment of price movements by themselves would not be adequate. Certain related elements, notably production changes, had to be brought into the picture. Because of this expansion, we did not carry out our first plan of rounding off the investigation in 1934. The schedule on which we are now working calls for the submitting of a manuscript to the Board of Directors in 1935.

The character and scope of the study are indicated by the following list of chapters:

- I General Aspects of Recent Price Changes
- II The Pre-Recession Situation
- III Price Movements and Related Economic Changes during Recession and Depression
- IV Price Changes and the Fortunes of Primary Producers in Recovery
- V Manufacturing Industries in Recovery
- VI Capital Equipment and Construction in Recovery
- VII The Consumer in Recovery
- VIII World Prices in Recovery
- IX Summary and Conclusions

The body of the report is concerned with the fortunes of four major economic groups, as these were affected by the forces of contraction, and by the conflicting currents of the years 1933 and 1934. Primary producers have been in a peculiar position during the entire period since the World War. Manufacturing industries have enjoyed notable gains in productivity, and have faced exceptionally difficult problems of readjustment brought about by drastic changes in price levels. The heavy industries, as a special class, are always in a position of strategic importance during depression and recovery. Their place in the present situation demands particular attention. Consumers, finally, standing at the terminal stage of economic activity, have been materially affected by the shifting tides of business activity. Alterations in the purchasing power of important consuming groups have played a role of critical importance in the events of the last five years.

The emphasis in this study is definitely upon the price system, as it functioned during a period of severe recession and depression, and as it reacted to the stimulus of changes in monetary and other conditions. In some respects, this report is a continuation of the story told by *Economic Tendencies*, which dealt with the modifications occurring in the

domestic economy of the United States during periods of expansion prior to and following the War. The present study is more sharply focussed, however, upon price phenomena. It departs from the pattern of the earlier book also in that it gives some attention to changing world conditions during the period since 1929.

Our work in the field of production is not designed merely to provide supplementary material for the price analysis. Here we are aiming first at a cross-section survey of the production structure to determine how productive resources are utilized, and how productive energies are divided among various possible uses. We plan to make this cross-section survey as of 1929, because of the relative richness of the materials available for that year. Beyond this, our present work is aimed toward detailed, accurate measurement of changes in the volume and character of production and in the productivity of labor in different industrial fields. During 1934 we have revised our index numbers of production, supplementing the somewhat specialized measurements hitherto constructed with measurements of broader scope and more general significance. We have also sought to measure with greater precision changes in the productivity of labor in the various manufacturing industries. When the manuscript on recent price changes is completed, we shall concentrate on the preparation of a report centered upon production and productivity.

PUBLIC WORKS

The Directors will recall that in 1929-30 we made, for the Committee on Recent Economic Changes, an investigation of the planning and control of public works in relation to employment. There had been considerable discussion of proposals to use public works as a 'balance wheel' to stabilize the movements of the economic mechanism; but the factual basis for a considered policy was lacking. Accordingly, the Committee wished us to undertake a preliminary but comprehensive study of the volume of public expenditures on

permanent improvements; their variety; such programs as existed for future construction; the important administrative features encountered in the execution of public works projects; finally, to examine, in theory and practice, the essential elements of proposed programs of control.

We published the results of our investigation in June 1930 under the title: *Planning and Control of Public Works*. While this volume served a useful purpose, its author, Dr. Wolman, felt that it should be followed by a more intensive inquiry. His chief assistant in the study, Dr. Arthur D. Gayer, became one of our Research Associates in 1930-31, and carried forward the work. After leaving the National Bureau, Dr. Gayer presented a report which we had under consideration when the Public Works Administration was created and the country embarked upon a vast new experiment in stimulating construction to relieve unemployment. From the National Bureau's viewpoint it was highly desirable that this current experience be covered by Dr. Gayer. Hence, when the National Planning Board, set up in August 1933, employed Dr. Gayer to prepare a report upon the planning of public works, the National Bureau gladly consented that he use the materials he had collected for us, on condition that we have the right to publish his manuscript if we so desired. Under this arrangement, Dr. Gayer has brought his survey down to date and presented us with a report that covers the subject in a more thorough fashion than any earlier book. This new manuscript is being mimeographed at present and will soon be sent to the Directors.

BUSINESS CYCLES AND SECULAR TRENDS

Three of our publications in 1934 deal with the secular and cyclical movements of economic processes.

Dr. Arthur F. Burns' *Production Trends in the United States Since 1870* is the outcome of an investigation which he began when one of our Research Associates in 1930. Besides confirming the hypothesis that in most industries the secular trends of production conform to a general pattern,

Dr. Burns demonstrates the existence of 'trend cycles'—a type of movement that had not been definitely established by earlier investigators. These trend cycles consist in increases and declines in the rates of secular movement occurring simultaneously in many branches of production. This discovery opens up a fresh field of investigation of deep interest alike to the economic theorist and the economic historian.

Dr. Carl T. Schmidt's *German Business Cycles, 1924-33* is another product of our Research Associates. Using in somewhat simplified form the National Bureau's technique for measuring cyclical behavior, Dr. Schmidt gives a clear and interesting account of the dramatic alternations of business expansion and contraction in post-War Germany. All who are following the current economic fortunes of that enigmatic nation will find his analysis enlightening.

Professor John Maurice Clark's volume, *Strategic Factors in Business Cycles*, was prepared for the Committee on Recent Economic Changes. The National Bureau put at Professor Clark's disposal its statistical analysis of the cyclical behavior of many economic processes. On this basis Professor Clark sought to show what among the numerous factors in modern business play roles of strategic importance and afford possibilities of purposive control over business activity. The considerable sales of this book within a few months of publication reflect the esteem it has won among men of affairs and economists.

The study of 'Agriculture and Business Cycles' by Dr. Eugen Altschul and Dr. Fritz Strauss made good progress during 1934. Dr. Altschul lectures at the University of Minnesota, but his work there is related to his work here; he spends his university vacations at the National Bureau and keeps in close touch at all times with Dr. Strauss. The general argument of the study as now conceived runs as follows: crop fluctuations cannot be regarded as an essential factor in business cycles, nor can agriculture be regarded as a fully industrialized branch of production; nevertheless, agricultural dislocations influence the course followed by industrial cycles

and these cycles react upon agriculture; the character and potency of the mutual reactions vary with the organization of farming and its place in the economy of a nation; there appears to be a secular decline in the divergence between the two great branches of production.

Meanwhile the National Bureau's comprehensive study of business cycles in the United States, Great Britain, France and Germany has moved steadily forward. Having decided that March 1933 marks the terminal trough of the American business cycle that began in January 1928 and culminated in June 1929, we began the laborious task of bringing our statistical analysis of domestic time series up to date in the autumn of 1933. More recently we have fixed upon July 1932 as marking the corresponding terminal trough in France, and August 1932 as marking it in Great Britain and Germany. On this basis we have been adding the latest complete cycle to our foreign series also.

When completing our analysis of a series, we check the original transcriptions and computations, take account of any improved or additional data that may have become available since our preliminary computations were made, and introduce the improvements in our technique which we have effected within the past year or two. Thus we are putting our measurements of cyclical behavior into final form for publication. The work is time consuming because eight rather elaborate tables have to be made for all but a very few peculiar series, and in many cases a ninth table showing seasonal variations. It is not wise to rush the work by employing many computers, for each new recruit must be taught our rather elaborate technique and supervised closely for some time before he can be expected to contribute as much efficiency as he costs.

The following tabulation, prepared by Miss Cicely Applebaum who is in immediate charge, shows the status of the statistical work at the end of 1934.

NUMBER, COUNTRY OF ORIGIN AND INTERVAL OF TIME SERIES
ANALYZED BY THE BUSINESS-CYCLE UNIT

As of December 31, 1934

COUNTRY OF ORIGIN	NUMBER OF							
	MONTHLY SERIES		QUARTERLY SERIES		ANNUAL SERIES		TOTAL	
	PRE- LIMINARY FORM	RE- VISED FORM	PRE- LIMINARY FORM	RE- VISED FORM	PRE- LIMINARY FORM	RE- VISED FORM	PRE- LIMINARY FORM	RE- VISED FORM
United States	412	196	75	2	64	24	551	222
Great Britain	50	7	8	1	9	..	67	8
France	61	13	3	..	10	..	74	13
Germany	33	7	1	..	9	..	43	7
Total	556	223	87	3	92	24	735	250

At present Miss Applebaum has thirteen computers in her unit and expects to complete the work of revising and bringing all the analyses down to date by June. Of course the monthly series take much more time than the others. A trifle over 40 per cent of them had been revised by the end of the year and the proportion is now nearly one-half.

When the statistical unit is within sight of its goal, we plan to begin the preparation of a record book that will present our business-cycle measurements in full for each series. By adopting a compact arrangement devised by Dr. Burns and one of the photographic methods of reproducing a typescript, we hope to put the large mass of figures in convenient form for use by ourselves and others. The volume will contain no text beyond a careful description of each series showing its source, what it covers, how it is compiled and any special precautions that should be observed in using our measurements. In view of the active interest taken in business cycles by many practicing statisticians in public and private employment, as well as the numerous courses on the subject offered in universities, colleges and schools of commerce, we think the demand for this volume, technical as it will be, should repay the costs of publication. The title will

probably be *Business Cycles: Statistics of Cyclical Behavior*. Whether this volume can be published in 1935 will probably be controlled by the time required to complete the descriptions of the series—a task far more exacting than one might think.

While the statistical staff has been preparing these basic measurements, your Director of Research and Dr. Burns have been working on the volume that will present and interpret the general results of the investigation. Last spring we mimeographed a trial version of the chapters that explain the aim, scope and the technical methods of the investigation in order that we might profit by criticisms before the statistical work was completed. Dr. Burns made various tests of the results given by our technique that show its merits and limitations in a clearer light, and also studied certain cognate problems—particularly, the long cycles found in residential construction. Several improvements in method resulted from this work in time to be incorporated in our current revision of the measurements. The next tasks are to revise the mimeographed edition of the methodological chapters, and to prepare a *Bulletin* upon 'The National Bureau Technique for Measuring Cyclical Movements'. Then we shall set to work upon the substantive chapters showing the cyclical behavior characteristic of different economic processes. All except the last of these chapters have been written at least once; but the present texts are based upon measurements that stop in 1927 or thereabouts. The inclusion of later cycles and of what we have learned in the last two or three years about our own technique as well as many other matters will require a complete recasting of the earlier manuscripts. We can scarcely expect to have the new version ready for submitting to the Board before 1936.

III. Publications

A PARTIAL summary of the various activities discussed in the preceding pages is provided by the following list of the National Bureau's publications in 1934 and of its tentative plans for publications in 1935.

PUBLICATIONS IN 1934

Books:

- Production Trends in the United States since 1870*, by Arthur F. Burns, 363 pp.
Strategic Factors in Business Cycles, by John Maurice Clark, 238 pp.
German Business Cycles, 1924-33, by Carl T. Schmidt, 288 pp.
Industrial Profits in the United States, by Ralph C. Epstein, 678 pp.
Mechanization in Industry, by Harry Jerome, 484 pp.

We have also sent to our subscribers bound copies of *National Income, 1929-32* (written mainly by Simon Kuznets), Senate Document 124, 72d Congress, 2d Session; Government Printing Office, Washington, D. C., 261 pp.

Bulletins:

- National Income, 1929-1932, by Simon Kuznets
Recent Corporate Profits in the United States, by Solomon Fabricant
Recent Changes in Production, by Charles A. Bliss
Gross Capital Formation, 1919-1933, by Simon Kuznets

Changes in Prices, Manufacturing Costs and Industrial Productivity, 1929-1934, by Frederick C. Mills

Placing our *Bulletin* on a subscription basis, separate from the contributing membership, has proved a success, 630 subscribers having been obtained during this, the first year of the experiment.

PUBLICATIONS IN PROSPECT

Books:

The one definite announcement that can be made concerning our publications in 1935 is that the Directors have approved Professor Paton's *Corporate Profits as Shown by Audit Reports*. That book is now in press. For the rest, we present a list of manuscripts which the staff expects to submit to the Directors for their judgment. Dr. Frederick R. Macaulay's *Bond Yields, Interest Rates and Security Prices* is scheduled for submission by the date of the annual meeting. Dr. Arthur D. Gayer's *Public Works and Economic Stability* will be ready for circulating in February. Other manuscripts which we expect to submit, but which we cannot schedule definitely as yet, include Dr. Leo Wolman's *Movements in Trade Union Membership since 1923*, Dr. Simon Kuznets' *Incomes in Independent Professions*, and a study tentatively entitled *The International Gold Standard under Pre-War and Post-War Conditions*. The last-named study is being conducted at Brown University by Professor William Adams Brown, Jr., Dr. Carel J. Smit and Dr. A. G. Silverman. In view of the importance of the subject, of the use made of our technical methods by Dr. Silverman, and of our close contacts with the investigation, the Executive Committee has approved the acceptance of the report for publication in the National Bureau's series, provided it is satisfactory to the Directors.

Other candidates for publication that may be ready in 1935 are Dr. Mills' *The Price Structure in Recession and Recovery*, Dr. Kuznets' book on national income, Dr. Silver-

man's study of British foreign trade, and Dr. Wassily Leontief's analysis of the shifts in the demand for and supply of commodities during business cycles. Even if all of these investigations should be completed within this year, which is not probable, we would still have a goodly harvest in prospect for 1936, including Dr. Mills' systematic study of changes in production, Dr. Kuznets' improved estimates of capital formation, Dr. Wolman's treatise on the labor market, Dr. Wickens' investigation of real-estate financing, Mr. Fabricant's work on the consumption of capital, and two volumes on business cycles.

Bulletins:

Dr. Mills, the editor of the *Bulletin*, has announced the following topics, from which five will be selected for our 1935 issues:

Wage and Hours under the Codes of Fair Competition, by
Leo Wolman

Business Profits, by Solomon Fabricant

Changes in the Volume and Character of Production during
Depression and Recovery, by Charles A. Bliss

The National Bureau Technique for Measuring Cyclical
Movements, by Wesley C. Mitchell and Arthur F. Burns

Recent Changes in Employment, by Meredith B. Givens

Aspects of Recent Price Changes, by Frederick C. Mills

Changes in the Size and Distribution of the National In-
come During a Quarter of a Century, by Simon Kuznets

Our editor, Miss Martha Anderson, is responsible not only for preparing the manuscripts of all our books and bulletins for the press, but also for circulating manuscripts among the Directors, recording their votes, making business arrangements with printers, proof reading, and the other stages of production. The improvements in typography, paper, and binding effected in the last two years have been due to her, and have been accompanied by reductions in manufacturing

cost. Miss Anderson has charge also of what publicity we do. To increase the circulation of our books and bulletins, she attended the annual meetings of the social science associations in Chicago at the end of December, taking with her an exhibit of recent publications. The results justified this experiment so thoroughly that we may repeat it this year.

IV. Planning

THE National Bureau should not only carry some of its investigations to the final stage of publication every year; it should also initiate fresh investigations. The task of selecting and formulating new problems is one of our gravest responsibilities. Genuine research is an effort to find out something hitherto not known. No one can forecast with certainty the measure of success which such an enterprise will attain. The possible lines of exploration into the unknown are indefinitely numerous. Our Directors make suggestions that arise out of their diverse experiences; every staff member in trying to solve one problem raises new problems; correspondents often write us about virgin lands that we should cultivate. The decisions which we make in any year among alluring possibilities will affect our future development assuredly, but in ways that we can foresee but dimly.

Feeling this responsibility a heavy one, the Executive Committee, the Director of Research and the staff have wished to secure competent advice from wider circles. For that purpose we held a Planning Conference in 1933. The informal discussion yielded so much of clarification that we called a similar conference last year. A brief account of this meeting on the 30th of May is given in our June *Bulletin*. Professor James W. Angell discussed research in monetary economics; Mr. Henry S. Dennison dealt with research problems suggested by business and national planning; Dr. David Friday outlined the program of studies which the Social Science Research Council Committee on Credit and Banking hopes to have made. This conference has already had a direct influence upon the National Bureau's program, and we hope that certain other projects suggested by it will pres-

ently take form definite enough for submission to the Executive Committee. Meanwhile, we shall hold other planning conferences as aids in our effort to make wise choices of future undertakings.

V. Personnel

ALL members of the Board will share in the deep regret with which the National Bureau records the death of Mr. Hugh Frayne last summer. For twelve years Mr. Frayne had represented the American Federation of Labor upon our directorate. At this first annual meeting held since his loss, we feel him conspicuous by his absence. Scarcely any other Director has been a more regular attendant at our sessions, and none has shown a fuller measure of consideration for others. On our behalf, the Executive Committee took the first opportunity to express to Mr. Frayne's family and to the American Federation of Labor the sympathy of the National Bureau.

Our technical staff has been strengthened this year by the addition of Dr. Fritz Strauss, who is assisting Dr. Eugen Altschul in his study of agriculture and business cycles.

We are anticipating with lively pleasure another accession to the staff. Dr. Oswald W. Knauth was one of the quartet of investigators who began the National Bureau's staff work, taking an important part in preparing our first two volumes on national income. Though circumstances compelled him to leave the staff, he returned as a Director, presently to become President. That among the many flattering inducements held out to him since his retirement from business he should choose to return to the National Bureau is a tribute to the scientific interest and the social value of our work which we rate highly.

WESLEY C. MITCHELL

PUBLICATIONS OF THE NATIONAL BUREAU OF ECONOMIC RESEARCH

- 1. INCOME IN THE UNITED STATES
By WESLEY C. MITCHELL, WILLFORD I. KING, FREDERICK R. MACAULAY
AND OSWALD W. KNAUTH
Volume I (1921) Summary 152 pp.
Volume II (1922) Details 440 pp.
 2. DISTRIBUTION OF INCOME BY STATES IN 1919 (1922)
By OSWALD W. KNAUTH 30 pp., \$1.30
 - 4. BUSINESS CYCLES AND UNEMPLOYMENT (1923)
By the NATIONAL BUREAU STAFF and 16 COLLABORATORS 405 pp., \$4.10
 - 5. EMPLOYMENT, HOURS AND EARNINGS IN PROSPERITY AND
DEPRESSION, UNITED STATES, 1920-22 (1923)
By WILLFORD I. KING 147 pp.
 6. THE GROWTH OF AMERICAN TRADE UNIONS, 1880-1923 (1924)
By LEO WOLMAN 170 pp., \$2.50
 7. INCOME IN THE VARIOUS STATES: ITS SOURCES AND DIS
TRIBUTION, 1919, 1920 AND 1921 (1925)
By MAURICE LEVEN 306 pp., \$3.50
 8. BUSINESS ANNALS (1926)
By WILLARD L. THORP, with an introductory chapter, *Business Cycles*
as Revealed by *Business Annals*, by WESLEY C. MITCHELL
380 pp., \$2.50
 9. MIGRATION AND BUSINESS CYCLES (1926)
By HARRY JEROME 256 pp., \$2.50
 10. BUSINESS CYCLES: THE PROBLEM AND ITS SETTING (1927)
By WESLEY C. MITCHELL 489 pp., \$5.00
 - 11. THE BEHAVIOR OF PRICES (1927)
By FREDERICK C. MILLS 598 pp.
 12. TRENDS IN PHILANTHROPY (1928)
By WILLFORD I. KING 78 pp., \$1.00
 13. RECENT ECONOMIC CHANGES (1929)
By the NATIONAL BUREAU STAFF and 15 COLLABORATORS
2 vol., 950 pp., per set, \$7.50
 14. INTERNATIONAL MIGRATIONS
Volume I, Statistics (1929), compiled by IMRE FERENCZI of the Inter-
national Labour Office, and edited by WALTER F. WILLCOX
1,112 pp., \$7.00
 18. *Volume II*, Interpretations (1931), edited by WALTER F. WILLCOX
715 pp., \$5.00
 - 15. THE NATIONAL INCOME AND ITS PURCHASING POWER
(1930)
By WILLFORD I. KING 394 pp.
- Out of print.

16. CORPORATION CONTRIBUTIONS TO ORGANIZED COMMUNITY WELFARE SERVICES (1930)
By PIERCE WILLIAMS and FREDERICK E. CROXTON 347 pp., \$2.00
17. PLANNING AND CONTROL OF PUBLIC WORKS (1930)
By LEO WOLMAN 260 pp., \$2.50
19. THE SMOOTHING OF TIME SERIES (1931)
By FREDERICK R. MACAULAY 172 pp., \$2.00
20. THE PURCHASE OF MEDICAL CARE THROUGH FIXED PERIODIC PAYMENT (1932)
By PIERCE WILLIAMS 308 pp., \$3.00
21. ECONOMIC TENDENCIES IN THE UNITED STATES: ASPECTS OF PRE-WAR AND POST-WAR CHANGES (1932)
By FREDERICK C. MILLS 639 pp., \$5.00
22. SEASONAL VARIATIONS IN INDUSTRY AND TRADE (1933)
By SIMON KUZNETS 455 pp., \$4.00
23. PRODUCTION TRENDS IN THE UNITED STATES SINCE 1870 (1934)
By ARTHUR F. BURNS 363 pp., \$3.50
24. STRATEGIC FACTORS IN BUSINESS CYCLES (1934)
By JOHN MAURICE CLARK 238 pp., \$1.50
25. GERMAN BUSINESS CYCLES, 1924-1933 (1934)
By CARL T. SCHMIDT 288 pp., \$2.50
26. INDUSTRIAL PROFITS IN THE UNITED STATES (1934)
By RALPH C. EPSTEIN 678 pp., \$5.00
27. MECHANIZATION IN INDUSTRY (1934)
By HARRY JEROME 484 pp., \$3.50
28. CORPORATE PROFITS AS SHOWN BY AUDIT REPORTS
By W. A. PATON (in press)

THE BULLETIN

Subscriptions to the National Bureau *Bulletin* (5 issues, \$1) may begin with any of the following numbers:

48. ASPECTS OF RECENT PRICE MOVEMENTS, F. C. MILLS (Oct. 31, 1933)
49. NATIONAL INCOME, 1929-32, SIMON KUZNETS (rev. ed., June 7, 1934)
50. RECENT CORPORATE PROFITS, SOLOMON FABRICANT (April 18, 1934)
51. RECENT CHANGES IN PRODUCTION, C. A. BLISS (June 28, 1934)
52. GROSS CAPITAL FORMATION, 1919-33, SIMON KUZNETS (Nov. 15, 1934)
53. CHANGES IN PRICES, MANUFACTURING COSTS AND INDUSTRIAL PRODUCTIVITY, 1929-1934, F. C. MILLS (Dec. 21, 1934)
54. WAGES AND HOURS UNDER THE CODES OF FAIR COMPETITION, LEO WOLMAN (Feb. 28, 1935)