ried on without the assistance of the Departments of the Treasury and of Commerce; Board of Governors of the Federal Reserve System; Division of Statistical Standards, Bureau of the Budget; Federal Deposit Insurance Corporation; Interstate Commerce Commission; Office of the Comptroller of the Currency; Securities and Exchange Commission, and the Work Projects Administration.

Pooling of resources, public and private, corporate and individual, makes for economy of effort and funds, as well as more extensive and intensive research. That such numerous and diverse agencies are eager to contribute toward a common end implies a confidence for which we are grateful, and, what is vastly more important than our fortunes, a growing appreciation that policies are most likely to succeed when based upon knowledge of current conditions.

Business Cycles

LAST YEAR we reported the formation of a staff to prepare monographs on the cyclical behavior of various types of economic activity, utilizing the measures derived from the American, British, French, and German time series we have been collecting for a decade and that now number more than a thousand. During 1940 this staff was increased to fifteen by the accession of Thor Hultgren, Edward E. Lewis, and Lorie Tarshis. The latter two are Carnegie Associates. Busy upon their several monographs the staff members meet at frequent intervals to discuss common problems. The current work of this unit and plans for the near future are outlined on the ten following pages.

METHODS OF MEASURING CYCLICAL BEHAVIOR

We had hoped to publish this monograph, which is basic to the entire series of *Studies in Cyclical Behavior*, before the end of

1940. But further experience in applying our methods to the wide variety of data we have to handle and constructive criticisms by our collaborators led to substantial improvements in several details of the analysis and also revealed obscurities in our earlier exposition. We expect to submit the manuscript, which Arthur F. Burns has revised, to the Directors soon after the middle of the year. For readers of the substantive monographs to follow, this book will (1) state the aims that have guided our choice of materials and methods, leading us to prefer a rather simple analysis of many time series to more elaborate treatment of a few; (2) give a succinct account of the ways in which our cyclical measures are made, illustrated by examples, and (3) present a series of tests designed to bring out the significance and the limitations of the measures. For statisticians who may wish to check our results or apply our methods to fresh data and get measures comparable with ours, the book will furnish detailed working directions after the fashion of a laboratory manual.

AGRICULTURAL PRODUCTION

Geoffrey H. Moore, who resumed his teaching at Rutgers University in September, devoted most of his time while a Carnegie Associate last year to studying the fluctuations of agricultural output during short periods. In conjunction with W. Allen Wallis, another 1939-40 Carnegie Associate, he has been able to demonstrate that harvests behave like 'random' series, in the technical meaning of that term. That is, their short-time fluctuations can usually be represented accurately, so far as duration is concerned, by a set of observations serially independent of one another. Weather seems to be the dominating factor.

As this familiar conclusion will suggest to one acquainted with farming, the year-to-year changes in yield per acre of the principal American crops are positively correlated; the corre-

lation is closer among yields of crops that are similar in their climatic requirements than among yields of crops that differ in this respect. As the distance between areas in which the crops grow increases, the correlation diminishes, and there is some evidence that yields on opposite sides of the United States tend to move inversely.

Acreage cycles have characteristics markedly different from crop yields. Changes in both yield and acreage affect harvests, but since the influence of yield predominates, the specific cycles in production have no regular relation to business cycles. This conclusion, which is difficult to reconcile with certain well-known theories of business cycles, is supported by the European evidence as clearly as by the American.

Cycles in animal husbandry differ strikingly from both crop and business cycles. The cycles in the population of animals that require several years to mature are longer than business cycles. The cycles in animals slaughtered depend upon the number of breeding stock, the cost of feed, and market demand. Their relations to business cycles are somewhat closer than the relations of crop cycles.

Mr. Moore has analyzed also many series representing the processing of wheat, cotton, tobacco, and other staples. Cycles in the processed output are but loosely related to cycles in the volume of harvests and more closely related to cyclical movements in general business.

INDUSTRIAL PRODUCTION

The cyclical behavior of industrial production is the province of Mr. Wallis, who has returned to Stanford University. After all production series in our files had been examined to decide whether they should be brought up to date and in what respects the analysis should be revised, approximately 100 series were put into final form. We do not yet know how adequately our present sample covers the entire field of industrial

production, but we are aware of several unfortunate gaps that should be filled. The most serious appear in our records of chemicals, consumers' durable goods, industrial equipment, and virtually all non-agricultural production in Great Britain, France, and Germany. Many of the new series that can be added to represent these groups will probably not be analyzed in detail. Nevertheless, they will be useful adjuncts to the longer monthly series that have been or will be fully exploited.

Probably the best way to organize the monograph on industrial production is by major industries. The iron and steel industry was selected for the first intensive study.

Mr. Wallis also rendered valuable aid to the business cycle staff by writing several memoranda in collaboration with Mr. Moore upon technical problems encountered in applying or interpreting our methods of measuring cyclical behavior.

CONSTRUCTION

Mr. Burns' monograph on construction was well advanced when he was diverted to the more pressing task of finishing that on *Methods of Measuring Cyclical Behavior*. The latter done, he will resume his interrupted studies, and supplement them by analyzing the production of building materials.

TRANSPORTATION AND COMMUNICATION

Since Thor Hultgren came to us in October from the Interstate Commerce Commission he has concentrated upon railroad freight traffic in the United States. He finds that the cyclical turning points in its volume agree closely with those of industrial production; that the amplitudes of the specific cycles are intermediate between the amplitudes characteristic of the output of durable and non-durable manufactures; that the substantial importance of agricultural shipments tends to moderate the cyclical amplitude of the traffic; that traffic in goods with long hauls is more stable than in those with short hauls;

and that the average haul of all freight traffic is inversely related to business cycles, lengthening during contractions and shrinking during expansions.

Mr. Hultgren will turn next to rail passenger business and the traffic of other domestic forms of transport, then to communication in the United States, and finally to an examination of such records as are available of transportation and communication in Great Britain, France, and Germany.

COMMODITY PRICES

So far as we can, we treat production, construction, and transportation in physical terms. The price complement is in the hands of Frederick C. Mills. It would save much effort if Mr. Mills could follow the practice common among business cycle theorists of dealing only with indexes. For many purposes, price indexes are significant. But the knowledge we gain from them of what actually happens within the system of prices during a business cycle is far from adequate. They hide under a thick veil of averages highly significant diversities among leads and lags at revivals and recessions, among amplitudes of specific cycles, and among indexes of conformity. Nor is it possible to ascertain from them the relations between the cyclical movements in the production and the prices of given commodities; for that purpose we must analyze individual price series that match our records of output. Comparisons of this sort bring out exceedingly interesting differences between, for example, agricultural and mineral goods in the direction, timing, and amplitude of cyclical movements in prices and production.

Price quotations are relatively abundant, especially for this country; for some 200 commodities we have monthly quotations since 1890. But they must be used with care. Full specifications regarding the qualities of the goods quoted, the markets, and the terms of sale are requisite. Happily, the United States Bureau of Labor Statistics is checking its large collection

of wholesale price series, and the BLS-WPA Wholesale Price Studies Project, to which the Price Conference is adviser, is computing seasonal indexes of many series. A complete set of the data sheets, graphs, and computations will be deposited permanently in the National Bureau—a notable addition to our files. The detailed study of American prices during half a century will be supplemented by examination of the less abundant British, French, and German data.

Cyclical price movements can be interpreted only in their full economic setting. The investigation of price cycles must be fitted into the staff attack on business cycles. In the main, it is Mr. Mitchell's task to attempt to synthesize the findings of the various special investigations; but some of the more immediate connections among price and non-price movements will be treated by Mr. Mills. The price-quantity relations that are formalized in conventional demand and supply functions are subject to highly significant cyclical shifts. We go as far as we can in tracing and interpreting the cyclical movements of the price-quantity points corresponding to pairings of prices not only with production, but also with consumption, inventories, unfilled orders, etc.; for it is through interrelated price-quantity adjustments that a working economy adapts itself to changing conditions. The traditional demand-supply framework of static analysis will help in the interpretation of related cyclical changes in prices and quantities, but the complex shifts during business cycles cannot be fitted with precision into this scheme.

How do different elements of the price system behave during periods significantly longer than a typical business cycle? To gain acquaintance with non-recurring shifts in price relations, an essential background for a scrutiny of distinctly cyclical movements, Mr. Mills is using prices and fabricational costs from Census records, indexes of various classes of wholesale and retail prices, prices of public utility and other services, freight rates, farm prices, etc. In *Bulletin 80* he summarized

some shifts in price relations since 1890, organized on the reference-cycle basis.

Mr. Mills is classifying his materials according to many criteria, such as the source of commodities, their use, their relative durability and dispensability. It is hoped that the results of the study Roy W. Jastram, a Carnegie Associate attached to the Price Conference, is making of competitive policies and practices in different branches of business will enable us to segregate significant classes not hitherto recognized, as well as to explain certain puzzling changes in the sensitivity of prices at different stages of business cycles.

WAGE RATES

While Mr. Mills is covering the prices paid for commodities and transportation, Leo Wolman and Lorie Tarshis are dealing with the prices paid for many kinds of labor in the United States and Great Britain.

For the fifty-five years from the Civil War to the eve of the 1914-18 war, the largest collections of materials are the Aldrich and Weeks reports, the 19th Annual Report of the United States Commissioner of Labor, which was followed by numerous special bulletins for 1903-07, and Davis Dewey's report on wages, prepared as part of the 1900 Census. For the period since 1914 the leading series are those published by the National Industrial Conference Board, the United States Bureau of Labor Statistics, and, for two great industries, by the Interstate Commerce Commission and the United States Bureau of Mines.

Perusal of these sources raises questions that can be answered only by minute analysis of many detailed wage series and by additional data, to be had only after wide search. Also we need independent evidence to determine the representativeness of many series, to differentiate nominal from actual wage quotations, and to date cyclical fluctuations when rates

are reported merely once a year. For aid in dating, the labor chronologies published by several state labor bureaus for varying short periods have proved valuable. Of the reports of employers' associations the most comprehensive are four sets pertaining to the iron and steel industry.

During 1940 Mr. Wolman and his staff have canvassed many other sources. The richest, hitherto not systematically collated and interpreted, are the reports of the many state bureaus of labor statistics. Wage statistics covering from 17 to 70 years for 17 states have been examined as well as many federal bulletins, reports of Congressional hearings and investigations, and miscellaneous series showing changes in union rates. As a check on these samples, data on annual per capita earnings, employment, payrolls, and the regional distribution of the most important industries have been excerpted from the early censuses of manufacturing, mining, and transportation.

The immediate task is to sift and interpret this voluminous record of wage movements. The staff is piecing together various series, deciding which to retain and which reject, and attempting to fill several gaps that still yawn in the record for critical years and strategic industries. It does not plan to collect any new series.

Mr. Wolman's principal occupation in 1941 will be writing the first draft of a monograph on wage rates. He will analyze American wage rates since 1860 and include an account of wage rates in the United Kingdom, France, and Germany. One chapter will summarize Mr. Tarshis' work on British wages and compare their behavior with that of American. It is proposed to rest content with secondary sources for German and French wages, eked out by such primary series as are easily accessible at small cost.

Wage rates show merely changes in the price of labor. Of not less importance are changes in employment, in hours of work, in payrolls or labor income, and in the efficiency of labor

during the successive phases of business cycles. A study of efficiency is necessary to determine the unit costs of producing goods, concerning which there has been much speculation but little information. Mr. Wolman believes that a well equipped investigator can find data definite enough to raise the treatment to an objective level, and we wish we might put such a man to work at once.

COMMODITY STOCKS AND MERCHANDISING

From the economic viewpoint, distributing commodities to their users is an integral part of the production process, and stocks are essential for prompt distribution. If the flow of goods from original producers to ultimate consumers is to be continuous, dealers in raw materials, manufacturers of products that are to be further processed by others, makers of finished goods, wholesale merchants, and retailers must maintain inventories. Some holders of inventories can adjust their stocks to the changing volume of their business; others find their stocks piling up when business shrinks and declining when it expands. Few processes we have studied respond more diversely to business cycles. Though a business factor of the first rank, inventories have not received the attention they require. The physical volume of stocks on hand at a given time determines whether changes in sales to ultimate consumers will be passed on promptly to production and employment. Fluctuations in the dollar value of stocks affect the credit ratings of enterprises, their requirements for capital, their profits, and their solvency.

Close as is the connection between holding and selling commodities, we can get clearer ideas about the entire process of distribution by first treating inventories and then utilizing the results together with many other materials in treating sales. Moses Abramovitz is following this plan. The outline of his *Cyclical Behavior of Inventories*, which is perhaps as far advanced as any of our cyclical studies, suggests its scope: Impor-

tance of Inventories in Business Capital; How Inventories Behave: Cycles in the Value and Physical Volume of Inventories and in the Accumulation of Physical Stocks; Factors affecting the Behavior of Inventories: Inventories and Business Activity, Price Speculation, and Credit Conditions; the Role of Inventories in Business Cycles: Inventory Accumulation and National Income; Inventories and Prices and the Loan Market; the Role of Inventory Profits.

BUSINESS ENTERPRISES

Though the changing number, condition, and profits of enterprises are among the obviously leading factors in business cycles, information concerning them is notoriously deficient. Since 1863 the Comptroller of the Currency has reported the condition of national banks three to six times a year. The Interstate Commerce Commission's financial statements of railways begin in 1888; corresponding statements on communication not until 1926. From the Bureau of Internal Revenue come corporate reports that are mere skeletons in 1909 but put on flesh in later years. Non-official agencies have published valuable statistics of bankruptcies and long series of handbooks reporting the financial condition of individual enterprises, but they are designed for the investor rather than the investigator. Huge deposits of unpublished, even unsummarized, data exist in the old files of taxing authorities, banks, and investment houses. Useful exploratory studies of profits, based upon samples of varying size, quality, and time span, have been made by accountants and economists. Epstein's *Industrial Profits in the United States* and Paton's *Corporate Profits as shown by Audit Reports* are examples from our own list, and at least three of our Directors have done notable work in this field. Yet when we try to ascertain how the condition of enterprises changes from phase to phase of business cycles we are handicapped by

scanty materials that are far harder to handle than those relating to production or prices.

When we have the several samples of balance sheets and income statements by years since 1920, 1916, or 1904 that are being collected for the Financial Structure Project we should be in a much more favorable position than our predecessors were to determine how the financial fortunes of numerous types of business affect and are affected by business cycles.

Meanwhile G. Heberton Evans, Jr., who was with us last year as a Carnegie Associate and has returned to Johns Hopkins, is compiling series that show monthly for many states the number of business companies chartered and the amount of capital stock authorized, together with a cross-classification of number by amount of capital. Supplementing these systematic tables are incorporations of non-business enterprises, of business corporations that are stillborn, of the purposes for which corporations are formed, of increases and decreases in capitalization, and of the previous history (if any) of incorporated enterprises. He plans to add a record of changes in private incorporation laws and such material as he can gather on incorporations in Great Britain, France, and Germany. A grant from the Rockefeller Foundation to Johns Hopkins assures the continuation of his investigations.

MONEY AND BANKING

Original data on money and banking in the United States are certainly fuller than those for any other large country, and probably they are more nearly complete than the American data for any other economic factor of comparable importance, with the doubtful exception of railroading. Yet they have serious defects. Both the deficiencies in coverage and doubts concerning the reliability of the data themselves become more consequential as we push back in time. The first main job of James W. Angell of Columbia University, who is in charge of

this field, was to locate and assay the defects and to weigh the possibilities of overcoming them. This preliminary course-plotting is well in hand and a good start has been made on improving the series.

We have been fortunate in gaining the collaboration of the federal agencies chiefly interested in the compilation and study of monetary and banking data. In 1938 the Board of Governors of the Federal Reserve System announced its intention of reworking the figures for earlier years published at intervals in the *Federal Reserve Bulletin* and of issuing the revised data as a standard base-book. And as already mentioned, the Board of Governors of the Federal Reserve System, the Office of the Comptroller of the Currency, and the Federal Deposit Insurance Corporation will revise series for the chief balance sheet items, on June call dates, for national banks since 1863 and for state banks since 1914. George Blattner, formerly director of our Financial Research Program, is supervising this work. We shall be gratified if the governmental agencies presently see their way clear to assume also the revision of other banking data and the interpolation of figures for all call dates.

The present status of each undertaking and the division of labor between the governmental agencies and ourselves is as follows:

a) National banking. The federal agencies have virtually completed the revision of the principal balance sheet items back to 1863. The revised data are being classified by states and by reserve categories of banks, but for June call dates only, that is, for one date a year. Moreover, the separation between demand and time deposits is carried only to 1909, when the Comptroller of the Currency began to request it; the separation between 'loans and discounts' and 'investments' is not carried far enough; and in the 'due from banks' item reserve balances,

other balances, and 'float' are not differentiated. As yet we have not attempted to improve these figures.

b) State banking. The governmental agencies will soon complete the revision of these data back to 1914, on a basis as nearly comparable to that of the national bank data as possible. As yet we have done little in this field beyond exploring the state bank data from the beginning of the nineteenth century to 1914. From state reports, banking and financial journals, almanacs, and other sources, we can probably get a much wider coverage for the principal state bank items than is now given in the standard compilations, and perhaps a more detailed classification, although, since fewer items are published in most state reports, not as detailed as that of the national bank data. The state bank component in the national total since 1863 seems to have been underestimated. By using tax receipts, it is probable that good totals for state bank operations can be computed at least for 1863-83.

c) Currency. In its publications the Treasury does not separate currency in bank vaults from currency in circulation outside banks. It will be easy to compute the second, when, on completion of the various bank series, we have reasonably good figures on the first. The cooperating federal agencies have no present interest in these two totals, but both are essential to our analysis of the cyclical behavior of money and banking.

Before December 1941 we hope to have all the more important original series ready for analysis. To that end we must (1) extend and correct the revised annual series to approximate a complete coverage for all banks; (2) divide the large categories; (3) acquire information on the behavior of the several series in different parts of the country, in areas dominated by different types of economic activity, and in communities of different sizes; (4) put as many of the revised data as possible on at least a call date instead of an annual basis. For the second and third of these objectives it will probably be

expedient to use sampling methods freely. Samples of substantial parts should give a fairly reliable impression of the share of banking in cyclical movements.

We shall ourselves collect what information we can on the rates charged by banks for advances of various sorts. Interest rates in the central money markets have been extensively studied. Relatively little is known, however, about rates on 'customer' loans before 1914, or rates on loans secured by local assets and investments in them, though these items formed the major source of bank earnings. Presumably much of the surviving information can be culled from the banking journals, almanacs, and the like with which we are supplementing governmental reports on balance sheet items.

Besides effecting these improvements in and extensions of the basic data, we hope that by the end of the year we shall have put most of the more important through the standard cyclical analysis, and started studying their relations both to one another and to other important types of business transaction. For the moment, we shall not try to do anything with foreign data. Our progress depends in part on how much more the cooperating governmental agencies can do and in part on the number of assistants we can employ.

INTERNATIONAL ASPECTS OF BUSINESS CYCLES

This large and exceedingly complex subject is divided between Oskar Morgenstern of Princeton University, who takes international financial transactions, and Rollin F. Bennett of Columbia University, who takes foreign trade in commodities.

Some time ago the National Bureau analyzed the monthly series of total imports and exports of the four countries we are covering in the business cycle program, together with the breakdowns of these series into four or five classes in the United States, Great Britain, and France. For Mr. Bennett, as for our other collaborators, series of wide coverage are in-

dispensable, but he cannot be sure of their meaning until he becomes acquainted with some of their leading components, only a few of which we had analyzed when he began. In particular, the general tables on foreign trade run in terms of money values alone. Since we want to know what role changes in physical quantities and in unit prices play in foreign commerce, Mr. Bennett's assistant, Fritz Lewy, has collected 178 series on the physical quantities of specific commodities or small groups of commodities shipped out of or into our four countries. Most of these series will serve their purpose without being analyzed by our standard technique.

To clarify the role of foreign trade in the international propagation of business cycles we classify total exports and imports by country both of destination and of origin. For each of our four countries, six such series are needed. To these Mr. Bennett hopes to add estimates of the trade between each and the rest of the world, of the relative importance of foreign trade in the domestic business of each, and a few series on tariff duties.

To bring out the financial aspects of international business relationships, Mr. Morgenstern is comparing the cyclical behavior of numerous series that represent similar activities in our four countries. For example, he compares wholesale price series, which Mr. Mills uses for other purposes, to find what similarities and differences appear in the timing and amplitude of price cycles in the United States, Great Britain, France, and Germany. Bank clearings, note circulation, interest rates, and bond yields will likewise do double duty, appearing in both Mr. Morgenstern's monograph and in reports that are focused upon the relations between the factors they represent and other phases of domestic business in each of our countries. To these materials Mr. Morgenstern is adding certain series that will be of interest primarily, though not exclusively, to his special part of the program. Of this sort are the gold exports and

imports of each country, and gold movements among them; also such data as can be had on the balance of payments of each.

Both Mr. Bennett and Mr. Morgenstern encounter two difficulties peculiar to their field. To determine what economic activities, or what fraction of certain activities, time series represent, all our collaborators must examine critically the way in which they have been compiled. To make international comparisons intelligently it is necessary to allow for differences in the construction of American, British, French, and German series that bear similar titles and yet may not represent exactly the same types of transaction. Even when the transactions represented are substantially identical, their significance in domestic business may differ widely from one country to another.

A second difficulty concerns the international chronology of business cycles. Our 'reference dates' were chosen to indicate the cyclical peaks and troughs of business activity in single countries. Though the transition from expansion to contraction and from contraction to expansion in any country affects business in all other countries, the international influences are not strong enough to stamp a uniform cyclical pattern upon business in all countries, or even in countries that deal with each other on so large a scale as the United States and Great Britain. Our two internationalists are seeking to descry traces of a common pattern clear enough to justify them in experimenting with a fifth set of reference dates—one that will mark off the cyclical expansions and contractions that are common at least to our four countries, and perhaps to many others.

OTHER FACTORS IN BUSINESS CYCLES

In organizing our *Studies in Cyclical Behavior* we deemed it wise to start with a few collaborators and expand operations by degrees. Limitations of the central staff were as weighty in shaping this policy as limitations of funds. We have not yet

begun monographs upon all the important factors covered by our statistical analyses, and for at least three we have not even collected time series in more than a casual fashion.

Certainly we should add *Transactions in the Security Markets,* for which we have a considerable, though not a sufficient, body of data. It is not so clear that we need a separate monograph on *Interest Rates,* for which we have also analyzed the readily accessible series. This topic can perhaps be covered by careful planning of the studies of banking, international finance, construction, security markets, and business accounts.

Nor have we decided how to treat *Saving and Investment.* The series falling specifically under this head in our statistical collection are for issues of new securities and savings bank deposits; but much more significant are our series on the production of durable goods, including buildings, railroads, industrial equipment, and the like; Mr. Evans' tables showing the incorporations of business enterprises; the data we hope to gather on the applications of undistributed profits; and the data we may gather on family budgets. But though several of the monographs will deal with special aspects of savings and investments, we should draw all these and other materials into an analysis to which the estimates of national income, capital formation, and capital consumption made by Simon Kuznets, Solomon Fabricant, and Harold Barger would contribute much.

Personal Incomes and Expenditures stand on much the same footing. Monographs now in process will discuss in detail the output of consumers' goods, residential construction, passenger traffic, retail sales, and wage rates. For the systematic treatment of family incomes and expenditures, we can add the fairly good samples of wage disbursements in our files, the much less satisfactory data on dividends and interest, what Mr. Moore finds out about farmers' incomes, the estimates of consumers' credit made under the Financial Research Program, Mr. Kuznets' estimates of national income classified by

type of payment, federal income tax returns, and collections of family budgets. By proper combination of these materials we should be able to get a clear view of the part that business cycles play in family fortunes and that readjustments in family spending, savings, and investment play in business cycles. In this monograph we may include also a topic about which we have done little, though talked much: the 'social concomitants of business cycles'—poor relief, public health, migration, school attendance, crime, marriages, births, deaths, and such other aspects of social welfare as are matters of record.

Central to our *Studies in Cyclical Behavior* is a thorough analysis of cyclical fluctuations in the leading items of balance sheets and operating statements. Few of the essential data are in a form satisfactory for our uses. To assemble them is laborious and calls for accounting skill. As said above, we have deferred this task until the data for the project on the changing capital requirements of business enterprises have been brought together. But a monograph on *Cyclical Shifts in the Financial Position of Business Enterprises* of different sizes and in different industries is indispensable.

We hope to add also a study of *Real Estate Cycles.* It would supplement Mr. Burns' work on construction as well as provide both material and insights for the projected monograph on *Saving and Investment.* Moreover, no other industry affords so good an opportunity to analyze the relation of business cycles to 'long cycles.' According to the estimate of the nation's wealth prepared by the Federal Trade Commission for 1922 the value of real estate made more than half of the grand total. In no type of investment do so many people share and none has been the subject of so many speculations, wild and sound, from the days when the founders of the republic traded in western lands they had never seen down to the 1930's when the decline in real property values may have exceeded a hundred billion

dollars. Fluctuations in real estate values are thus of large consequence in business cycles.

Before the 1920's real estate operations were neglected by economists. The many careful surveys made since then have been mainly in restricted localities, notably Chicago and St. Louis. What has been accomplished indicates what might be achieved over a wide field. A remarkably uniform sequence appears among the factors that shape decisions about real estate operations. We hope, therefore, that we shall be enabled to make a basic survey of real estate cycles in farm and urban property in different sections of the country, accompanied by more intensive studies of the real estate market in selected cities representing different types of development: New York, Chicago, St. Louis, Miami, Pittsburgh, Los Angeles, Detroit, and perhaps four or five others where good data can be compiled without heavy expense. As one of our chief investigators we hope to enlist Homer Hoyt whose *One Hundred Years of Land Values in Chicago* is probably the best book in the field. We have plans and a man; we lack funds. It would take about three years and cost about $70,000 to do the job adequately.

It has long been realized that sources of public revenues are subject, though in very uneven degree, to cyclical fluctuations, and that the like is true of public expenditures. This instability merits more attention than has commonly been given it by taxing authorities and appropriation committees. Recently the effects of taxes, government borrowing and expenditures upon business cycles have aroused public discussion. We hope to get suggestions how to attack *Business Cycles and Public Finance* from the Conference on Research in Fiscal Policy.

A fitting capstone for the *Studies of Cyclical Behavior* would be an analysis of the *Volume of Payments*. It might start with estimates of total monetary transactions built up from bank clearings and the more inclusive reports of debits to deposit accounts, series we have already analyzed along with numer-

ous 'indexes of the volume of business.' Then the aggregate should be classified by types of transaction. What types can be segregated must be determined by experiment. Perhaps we can use our materials, present and prospective, on production, prices, family receipts and expenditures, national income, capital formation, and the like to set up some such classification as the following:

I Payments immediately connected with current production and the disposal of consumers' incomes

Payments by business enterprises to consumers for services or the use of property

Payments by business enterprises to one another for commodities, services, or the use of property

Payments by consumers to business enterprises for commodities or services

II Payments to government by individuals and business enterprises, and payments by government to them

III Payments arising from the exchange of property, including securities of all types, real estate, and dealings in commodities on organized exchanges

IV Payments arising from the making and returning of loans, including the issue and retirement of securities

These are tentative proposals we hope to improve upon as we become better acquainted with the materials and as our ideas mature.

For several years the Universities-National Bureau Committee has cherished the idea of a *History of Business Cycles in the United States* prepared by numerous scholars in different sections of the country who would have access to local sources. Recognizing the value of such a history, the business cycle unit offered its statistical collections and expressed a desire to participate in the planning. But ways and means for so ambitious a project are hard to come by. It should embrace the history of underlying secular changes as well as of business cycles. Not a

little experimenting is requisite for sound organization. It may be that a highly competent group of economic historians will be ready within the year to embark upon this venture.

PREPARATIONS FOR THE FINAL VOLUME

We believe that our several monographs on the cyclical behavior characteristic of different economic activities from farming to banking will possess lively interest and substantial value in their own right. But they must be summarized. What we are tentatively calling *Business Cycles: The Rhythm of Business Activity* is based mainly upon our measurements of cyclical behavior and their interpretations by the authors of the monographs. Its aim will be to bring out the manner in which different activities react upon one another to produce alternations of expansion and contraction in the utilization of resources and hence in national income.

Of course this summary cannot be put into final form until the other monographs have been written. But it is possible, indeed highly desirable, to prepare preliminary drafts while the other monographs are in process; for, as explained in last year's annual report, this is the surest way to uncover gaps in our materials and analysis while there is yet time to fill them so far as may be. Methodical work on this synthesis is being carried on by Wesley C. Mitchell.

Meanwhile, one of our Carnegie Associates, Edward E. Lewis, is searching business cycle theories for suggestions of empirical inquiries we should be but are not making. We are now in the stage at which we can benefit most from whatever guidance can be had from thoughtful sifting of the literature.

Income and Capital Formation

NATIONAL INCOME

National Income and its Composition is in press. In Volume I Simon Kuznets (1) treats the conceptual and analytical prob-