38TH

ANNUAL REPORT

of the Secretary of Commerce

U. S. DEPARTMENT
OF COMMERCE

1950

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DEPARTMENT OF COMMERCE,
OFFICE OF THE SECRETARY,
Washington, December 29, 1950.

SIRS: Submitted herewith to the Congress is the Annual Report of the Secretary of Commerce for the fiscal year ended June 30, 1950. The opening section presents a general description and interpretation of the economic and business developments of the period. This is followed by a summary report of the principal activities of the Department's several bureaus and agencies during the year.

Respectfully,

Secretary of Commerce.

THE VICE PRESIDENT.
THE SPEAKER OF THE HOUSE OF REPRESENTATIVES.

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38TH ANNUAL REPORT OF THE SECRETARY OF COMMERCE

The Condition of the National Economy

A RESURGENCE in industrial production early in fiscal year 1950 signaled the end of the 1949 business recession. Thereafter, a period of relative stability served as the foundation for a broad and sustained recovery movement which advanced the Nation's economy to a peacetime peak at year's end.

As seen in retrospect, fiscal 1950 was a year in which the national economy overcame the threat of deflation—aided by the still large carry-over of wartime demands for investment goods—and after a brief adjustment resumed its upward trend. The dynamic shift in economic forces which occurred during this period was the subject of careful attention and joint action by business and Government. The economic indicators maintained by the Department of Commerce proved valuable in diagnosing the situation as it developed, and made it possible for the Department to mobilize its resources for prompt application to trouble spots.

The economic events of the period covered in this report are worthy of fuller exposition than is given below, since they constitute the concluding chapter of a sequence that began with VE-day in 1945 and ended with the invasion of South Korea 5 years later. The following account attempts to maintain that postwar perspective while recounting business progress during fiscal year 1950.

Completion of the Postwar Reconversion

In the period from the initiation of postwar reconversion until the onset of the 1949 recession there was a rapid and continuous advance in production, prices, income, and employment. The annual rate of production of goods and services—the gross national product—had at the end of 1948 increased to 270 billion dollars, a rate which in current dollars was about one-sixth above the wartime high.

The strong upward pressure upon prices and production was in part, of course, the consequence of the large carry-over of liquid assets from the war and the initial shortages of many types of goods unobtainable during the war. Relatively early in the postwar period, however, the stimulus of deferred demand was seen to be disappearing in successive sectors of the economy. Consumer stocks of most nondurable goods were restored promptly. Deferred demand for many of the lighter electric appliances was satisfied in 1947, and by the end of 1948 most heavy consumer durables were also dependent upon current consumer requirements. Meanwhile, the crest in foreign purchasing—activated by huge grants and loans by the United States—had been passed in early 1947, and the stimulus provided to investment by restoration of the business population to normal size was largely spent by the end of the same year.

Until the end of 1948 the economy took such adjustments in stride, as the expansionary forces—including a variety of Government programs—continued to prevail. Basic to the expansionary movement throughout this period were the continuing large demands for homes and for automobiles, together with the need of business enterprises to expand and replace plant and equipment, and to bring their war-depleted stocks of civilian goods into line with the greatly expanded volume of postwar business. As 1948 passed into 1949, the inventory situation changed drastically, and business spending for plant and equipment receded as many immediate postwar programs for expansion were completed.

The Trend Toward Recession

The completion of inventory development had a marked and immediate impact upon the economy. In the fourth quarter of 1948 inventory accumulation had reached an annual rate of 9 billion dollars, which means that the Nation's production exceeded its consolidated sales by this amount. Early in the first half of fiscal 1950 inventories were being liquidated at the annual rate of 5 billion dollars, which means that sales were in excess of production. Thus, with a shift from a 9-billion-dollar rate of inventory accumulation to a 5-billion-dollar rate of liquidation, it is evident that at annual rates a 14-billion-dollar drop in total production can be ascribed to this factor alone.

The fundamental reason for the cessation of inventory accumulation was simply that by the end of 1948 stocks had reached a level which businessmen regarded as adequate to support the volume of business transacted. In addition, whereas it had been advantageous for business to adopt an easy inventory policy while prices were rising, price weaknesses developing at the end of 1948 dictated a more conservative policy—to minimize the risk of loss on a falling market.

Concurrently, farm income was also falling sharply from its extraordinary 1948 level, as a result of supplies accumulated in years of maximum farm production and the ebbing of abnormal foreign demand for farm products.

Underlying Strength of the Economy

In spite of these adverse developments a chain of deflation was not set off elsewhere in the economy.

A major deterrent to further decline was the fact that the drop in income earned from current production—the national income—had little counterpart in personal income after taxes, and consequently consumers were able to maintain their purchases.

The automatically counter-cyclical features of governmental finances in such fields as farm price support, social insurance, and taxation were instrumental in supporting private buying. Government lending operations, particularly in the field of residential mortgage credit, exerted an additional sustaining influence upon private activity.

One principal factor accounting for the difference in movement between national income and the flow of income to individuals was the stable disbursement of dividends—low throughout the postwar period in relation to earnings—and other property incomes in spite of reduced business earnings. Also serving to support personal incomes available for spending were an increase in unemployment insurance benefits and other Government transfer payments, and lower individual income tax payments. To the small extent that consumer income did decline, it was offset in its effect on spending by a reduction in the rate of saving out of current income.

Thus, in the first quarter of 1949 consumer expenditures in dollars were off about 1 percent, less than the decline in prices, and thereafter did not change until the first quarter of 1950.

Since consumer purchases absorb about seven-tenths of the gross national product, the firmness of the consumer sector was of enormous importance in sustaining the economy as a whole. This stability in consumer outlays embraced rising expenditures for automobiles, television sets, rent, and many types of services, and lowered dollar outlays for food, clothing, and many other nondurable commodities.

The decline in business purchases of plant and equipment in the first half of 1949 was a factor in the course of developments at that time. A temporary slump in residential construction, which had started in the last half of 1948 as potential buyers held off purchasing in the expectation of substantial price declines, was also in progress. The drop in total fixed investment, including residential construction, from the fourth quarter of 1948 to its low point in the last quarter of fiscal 1949 was limited, however, to about 3 billion dollars at annual rates.

In this critical period, strong support was lent to the economy by a rise of 4 billion dollars at annual rates in purchases of goods and services by Fed-

eral, State, and local governments. This rise in Government buying, inclusive of grants to foreign countries, almost fully offset the moderate drop in private buying for final use.

Business Regains Its Balance

While general pessimism over the business outlook did not seem warranted as fiscal 1950 began, substantial unemployment had arisen in scattered industrial areas, with local production curtailed. The President, recognizing the need for bolstering business confidence in these trouble spots, directed the Secretary of Commerce to appraise the Nation's business situation and to draft recommendations for Federal assistance to the areas most seriously affected by the recession.

In carrying out this assignment, the Secretary personally made a Nationwide survey, meeting with business, labor, and civic leaders. The mutual interchange of ideas which flowed from these discussions not only was helpful in determining the nature of the problems in the communities concerned, but in many cases was an aid to their solution. As the study progressed the Secretary was able to note not only the great underlying strength in the economy but that business was actually improving in previously distressed areas.

In August the index of industrial production shot upward from its recession low and business loans reversed their downward trend. By midsummer, the decline in aggregate investment had been checked. The rate of inventory liquidation began to diminish as the underlying core of demand made necessary a revival of business orders, and substantial recovery occurred in residential construction, where the backlog of demand continued large. During the first half of the fiscal year 1950 these two favorable factors approximately offset further declines in business expenditures for producers' durable equipment and nonresidential construction, and a reduction in foreign investment.

Concurrent with the stabilization of aggregate investment, however, the expansion of Government buying ceased. With these formerly dynamic factors at comparative rest during the first half of the fiscal year, sales, production, employment, and prices were nearly stable in most industries. However, some increases were appearing, and such declines as continued, e. g., in agricultural prices, were taking place at a diminished rate. The first half was thus one of over-all stability within which were embraced moderate advances in some of the earlier declining segments, but with the beginnings of a renewed upturn of business clearly apparent.

Factors Encouraging Economic Expansion

The impetus to renewed progress was inherent in three major expansionary situations.

(1) Housing starts had begun to rise again as early as May 1949, and this was reflected in an increase in residential construction activity during the first half of the 1950 fiscal year. Housing activity had declined much less than is customary in the winter months, and in the third fiscal quarter starts ran far above comparable months of any past year. This upsurge in home building was accompanied by a firming of commercial construction, which was required to service new developments. It also brought a marked advance in sales of furniture, housefurnishings, and appliances, which were required to outfit the new homes that were completed.

(2) An unusual element in the expansionary outlook was the payment of 2.6 billion dollars in National Service Life Insurance refunds to veterans during the second half of fiscal 1950. These payments boosted personal income extraordinarily in this period, and stimulated consumer purchasing of both durable and nondurable goods. The immediate rise in consumer expenditures was not, of course, equivalent to the gain in personal income, since the spending induced by these payments was spread over a considerable period of time. But sales prospects were enhanced.

(3) Just as the cessation of inventory accumulation brought a downswing in production at the beginning of 1949, so the ending of the period of inventory liquidation was a major force impelling expansion during 1950. By the third fiscal quarter there was no substantial change in over-all inventory holdings. In fact, there was a small amount of accumulation. This meant that the rate of production was brought up to the rate of purchasing. Following, as it did, a period in which liquidation had reached a maximum annual rate of 5 billion dollars, this was obviously a major force in the general upswing in production. By the end of the fiscal year business inventories were accumulating at a rate of 3 or 4 billion dollars annually.

In addition, foreign countries, as a whole, were enabled to effect a further material improvement of their financial position in relationship to this country during the fiscal year. Their need to replenish gold and dollar reserves continued, but its intensity was somewhat mitigated during the last three quarters.

United States merchandise exports increased during the final quarter about as much as the rise in Government grants under the European Recovery Program, while merchandise imports, after recovering from the low at the beginning of the year leveled off in the last fiscal quarter at a dollar volume not far below that prevailing prior to the 1949 downturn.

Economy Reaches Peacetime Peak

The position of the economy at the end of the fiscal year may be summarized by noting that the value of total output—the gross national product—was at an annual rate of 270 billion dollars. Since prices were,

on the whole, lower than in late 1948, the physical volume of production was actually above the previous high.

Final purchases of the output of the economy—measured by gross national product excluding inventory change—were higher than in any previous period in dollars, and significantly higher in physical volume. This was also true of consumers' expenditures for goods and services, which rose in the fourth fiscal quarter to 184 billion dollars, at seasonally adjusted annual rates.

Unlike the other quarters of the fiscal year, when consumer prices were drifting downward, the rise in the fourth quarter was accompanied by price increases. Dollar retail sales at the end of June, in the aggregate, were above their highest previous point and 10 percent above their June 1949 level.

Growth in the fixed business investment category was primarily concentrated in the equipment field. Purchases of producers' durable equipment rose from 19½ billion dollars, at annual rates, in the third quarter to 21½ billion dollars in the fourth. This advance followed the recovery from the low mark reached in the first half and brought the rate of business equipment purchases above that prevailing at the crest of the 1948 boom. Concurrently, outlays for railroad and transit equipment also increased.

The upward surge of production had its counterpart in a moderate advance in income. Aside from the temporary distortion of personal income by work stoppages and the nonrecurring Government insurance refunds, the underlying trend of personal income was upward. Aggregate corporate profits began to recover in the first half and this advance was continued in the second half.

Industrial and consumer prices were relatively stable during fiscal 1950, but such changes as did occur were predominantly in an upward direction. For example, food prices rose sharply in the last half of the year.

The course of production brought a marked rise in employment. At year's end, civilian employment of 61.5 million was nearly equal to the high reached in 1948.

Thus, the economy was at a peacetime peak when on June 25, 1950, the Communist forces from North Korea invaded South Korea. As the United States entered the conflict on behalf of the United Nations, and embarked on a greatly enlarged preparedness program, it was evident that a first phase of the return to normal business after World War II had been completed. What followed would be an unprecedented adjustment to a greatly enhanced armed strength in peacetime, an adjustment putting added strains upon the productive strength of the economy and a test of our ability to control the resultant inflationary development.

Summary of the Year's Operations[1]

OFFICE OF THE SECRETARY

Business Advisory Council

THE Business Advisory Council was formed in 1933 for the purpose of giving the Secretary of Commerce a group of confidential advisors, drawn mainly from the business community, who might reflect the point of view of progressive management on the administrative problems within the Department's jurisdiction as well as on general problems of public policy.

In carrying out this purpose the Council met with the Secretary on six different occasions during the year and individual members were also called in for consultation.

The active membership of the Council on June 30, 1950, stood at 59 and was composed of the following:

*James S. Knowlson, Chairman, Chicago, Ill.
*John M. Hancock, Vice Chairman, New York, N. Y.
*William E. Levis, Vice Chairman, Toledo, Ohio.
* Robert T. Stevens, Vice Chairman, New York, N. Y.
*John C. Virden, Vice Chairman, Cleveland, Ohio.
T. H. Banfield, Portland, Oreg.
W. L. Batt, Philadelphia, Pa.
S. D. Bechtel, San Francisco, Calif.
John D. Biggers, Toledo, Ohio.
Howard Bruce, Baltimore, Md.
Paul C. Cabot, Boston, Mass.
J. T. Cecil, Bristol, Tenn.-Va.
*Charles S. Cheston, Philadelphia, Pa.
Lucius D. Clay, New York, N. Y.
*John L. Collyer, Akron, Ohio.
Paul L. Davies, San Jose, Calif.
Fred Rogers Fairchild, New Haven, Conn.
Benjamin F. Fairless, New York, N. Y.
Henry Ford II, Dearborn, Mich.
Jacob France, Baltimore, Md.
Fred H. Haggerson, New York, N. Y.
Joseph B. Hall, Cincinnati, Ohio.

*Member of Executive Committee.

[1] Excluding the Federal Maritime Board and the Maritime Administration, whose activities during the closing weeks of the year following May 24, 1950, when they were created to replace the United States Maritime Commission, an independent agency, will be covered in the annual report for the fiscal year ending June 30, 1951.

W. H. Harrison, New York, N. Y.
Paul G. Hoffman, Washington, D. C.
*John Holmes, Chicago, Ill.
Preston Hotchkis, Los Angeles, Calif.
*G. M. Humphrey, Cleveland, Ohio.
*Austin S. Igleheart, New York, N. Y.
Emory Scott Land, Washington, D. C.
E. H. Lane, Altavista, Va.
Fred Lazarus, Jr., Cincinnati, Ohio.
*George H. Love, Pittsburgh, Pa.
J. Spencer Love, Washington, D. C.
George C. Marshall, Washington, D. C.
M. Lee Marshall, New York, N. Y.
Thomas B. McCabe, Washington, D. C.
John L. McCaffrey, Chicago, Ill.
*Earl M. McGowin, Chapman, Ala.
James H. McGraw, Jr., New York, N. Y.
John P. McWilliams, Cleveland, Ohio.
George H. Mead, Dayton, Ohio.
Thomas A. Morgan, New York, N. Y.
Ernest E. Norris, Washington, D. C.
A. Q. Petersen, New Orleans, La.
T. S. Petersen, San Francisco, Calif.
Gwilym A. Price, Pittsburgh, Pa.
Edgar M. Queeny, St. Louis, Mo.
Philip D. Reed, New York, N. Y.
Winfield W. Riefler, Washington, D. C.
Walter M. Ringer, Minneapolis, Minn.
E. A. Roberts, Mobile, Ala.
C. R. Smith, New York, N. Y.
John W. Snyder, Washington, D. C.
*A. E. Staley, Jr., Decatur, Ill.
J. Carlton Ward, Jr., Farmington, Conn.
Sidney J. Weinberg, New York, N. Y.
*Langbourne M. Williams, Jr., New York, N. Y.
*Charles E. Wilson, Detroit, Mich.
James W. Young, Santa Fe, N. Mex.

Office of the Solicitor

The Office of the Solicitor, the chief legal officer of the Department, provides legal services to the Secretary and other departmental officials. The Office exercises general supervision over the work of the Bureau and Office legal staffs, where the major part of the Department's legal work is done, and handles legal problems for those units which do not have legal staffs.

One of the major responsibilities of the Office of the Solicitor is the direction and coordination of the Department's legislative program, including also the Department's reports on legislation proposed by other sources. This function is carried out in close collaboration with policy-making officials in the Department and the affected bureaus and offices.

During the fiscal year 1950, requests for comments on 308 bills were received from the committees of the Congress, 228 reports setting forth the views of the Department were prepared and submitted to the Congress, during the same period the Bureau of the Budget requested the views of the Department on 201 items of legislation, and 163 reports were submitted to the Bureau. Sixty-four legislative proposals drafted in the Department were submitted to the Eighty-first Congress, and 18 such proposals were enacted by June 30, 1950. Twenty-four other legislative proposals drafted in the Department were enacted later in the second session of the Eighty-first Congress. In all, 509 legislative proposals affecting the Department were referred to the Office during the year.

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*Member of Executive Committee.

All contracts approved by the Secretary were reviewed by the Office. The number of contracts, leases, licenses, bonds, agreements, and similar contractual matters reviewed during fiscal 1950 was 316.

The Office also prepared or reviewed all requests for opinions from the Attorney General or Comptroller General, and other matters submitted to those officials, including reports on litigations. During the fiscal year 189 matters being referred to these officials were handled. The number of legal opinions and other legal memoranda and correspondence during the year amounted to 426.

Important matters of a nonroutine nature on which the Office worked during the year included the introduction and enactment of Reorganization Plan No. 7 of 1949 and Reorganization Plans No. 5 and No. 21 of 1950, involving, among other things, the transfer of the Bureau of Public Roads and the Maritime Administration to the Department; the establishment of the Government Patents Board; the Seventeenth Decennial Census; and mobilization planning, leading up to the subsequent introduction and enactment of the Defense Production Act of 1950.

Office of Program Planning

The Office of Program Planning carries central staff responsibility for reviewing, for the Secretary, the Under Secretary, and the Assistant Secretaries, the programs of the operating bureaus and offices for the purpose of assuring fullest integration with the broad programs and policies of the Department. Many of the problems assigned to this small staff unit entail joint action or study by more than one of the Department's constituent bureaus or operating offices. Often they involve coordination of several Department activities or policies with those of other Government agencies. Another important area of activity is comprised of new and emerging problems which do not clearly fall within any of the existing assignments of the line organizations.

Close liaison is maintained between the staff of program specialists and the heads of the bureaus and operating offices. They advise and assist in the formation of policies and programs during their planning stages so as to minimize duplication of effort, insure complete coverage, and promote full integration of departmental action. The Office also reviews questionnaires and economic and statistical reports requiring clearance by the Bureau of the Budget. By direction of the Secretary, the Office is responsible, further, for program liaison work with other Federal departments and establishments, including the constituent parts of the Executive Office of the President. This involves membership representing the Secretary or the Department on interdepartmental boards and committees as well as less formal contacts.

Major problems on which the Office was called upon to work during fiscal year 1950 included:

(*a*) Participation in the preparation of a report by the Secretary to the President on the "Issues Involved in a Unified and Coordinated Federal Program for Transportation".

(*b*) Assistance in developing departmental views and recommendations on reorganization plans affecting the Department of Commerce.

(*c*) Assistance in planning and effectuating the transfer of the Maritime Commission to the Department of Commerce under Reorganization Plan 21 of 1950.

(*d*) Participation in Air Coordinating Committee activities, especially as regards mobilization planning for and economic problems of air transportation, including membership in the Resources Division and the Economic Division of ACC.

(*e*) Coordination for the Secretary of testimony presented by Federal agencies in support of the Joint Resolution approving the St. Lawrence Seaway and Power Project.

(*f*) Participation in the drafting of the proposed Small Business Act of 1950 to effectuate the President's recommendations concerning small business and in the preparation of supporting testimony offered by the Secretary.

(*g*) Advice on the program aspects of the reorganization of the Bureau of Foreign and Domestic Commerce.

(*h*) Coordination for the Secretary of the industrial mobilization planning activities of the Department; responsibility for departmental liaison with the National Security Resources Board, and membership on the Interdepartmental Staff Group of the Board.

(*i*) Organization for the Assistant Secretary for International Affairs of a cooperative study by the Offices of International Trade, Business Economics, and Industry and Commerce to determine the probable volume of United States imports at the end of the European Recovery Program (1952).

Office of Publications

The Office of Publications coordinates the informational activities of the Department. It acquaints business and the general public with the Department's findings, publications, and services and acts as a central programming office for the publications activities of the bureaus and offices.

During the first half of the fiscal year 1950, the Office concentrated on publishing the economic facts developed within the Department in order to help business and the public appraise the outlook at a time of uncertainty. The Office participated in the business fact-finding trips made by the Secretary at the request of the President and in publicizing the findings. It also arranged for a series of broadcasts entitled "How's Business?" with the Secretary and other officials as speakers, in cooperation with the University of Chicago Round Table of the Air.

Increased attention was given to bringing the Department's facilities and services together with small business. Window displays and posters calling

attention to business services were designed and distributed to the field offices. A series of broadcasts in which officials of the Department addressed small businessmen was scheduled in the fall of 1949.

Through the Office of Publications the Department received much help from business in disseminating economic facts and information concerning its services to business. Among these were notices in trade journals, radio time, and billboard posters inviting businessmen to consult the field offices. Numerous radio stations participated in the Office's public-service program of announcements and scripts calling attention to the Department's publications and its services in the field.

An important step to improve the Department's business services and their availability to business was the organization of the Advertising Advisory Committee to the Secretary. Staff services to establish the committee and conduct its affairs were provided by the Office of Publications. Recommendations of the Committee are proving valuable in the development and dissemination of information important to commerce and industry.

With full cooperation of the Office, a subcommittee of the Advertising Advisory Committee undertook an extensive study of the Department's facilities, services, and publications. This group provided material help in a project to develop a Department-wide mailing-list system designed to assure widest coverage at minimum cost for the release of departmental information through interested business associations and trade publications.

The Publications Project Clearance Procedure was extended to include virtually all projected and continuing periodicals, books, pamphlets, and other published materials in advance of preparation. During the 1950 fiscal year, 142 projects were examined. Of the total, 102 were cleared as submitted, 20 received provisional approval and 20 were disapproved. Numerous manuscripts were examined for conformance with departmental policy.

Additional periodic releases and reports were converted from a free to a paid basis. Application of the sales policy has demonstrated that more copies of a valuable publication can be sold than can be given away under any prudent system of free distribution. Again in the 1950 fiscal year, sales of Department of Commerce publications by the Superintendent of Documents exceeded those of any other department or agency. Sales rose by more than $100,000 to $1,035,000, and constituted 27 percent of all sales by the Superintendent of Documents. Including charts and certain processed materials sold directly by the Department (but not including copies of patents), sales of the Department's published materials reached $1,404,000.

The Office of Publications provided help during the 1950 fiscal year in the preparation of 60 speeches and other statements of policy and fact by the highest officials of the Department. It participated in arrangements for

major addresses before important business groups and by radio and television. It also assisted in the arrangements for displays and conferences in a number of cities. A member of the Office of Publications staff again served as Chairman of the Publications and Manuals Subcommittee of the Air Coordinating Committee.

The Departmental News Room provided news coverage for the Office of the Secretary and assisted the bureaus and offices in preparing business releases. Through the News Room, the Office of Publications maintained close contact with representatives of the general and business press and distributed to correspondents and business representatives reports and studies bearing on virtually every aspect of business and industry and of the foreign and domestic commerce of the United States.

Office of Budget and Management

The Office of Budget and Management is responsible for reviewing and approving all budget estimates for the Department; controlling the funds of the Department, and assuring that the expenditure of funds for the execution of departmental programs follows basic legislative authority; reviewing organizational structure and developing organizational plans to meet the current and evolving needs of the Department, and making continuing studies of functions and organizational relationships; conducting operations audits and investigations of the administrative and operating practices, procedures, and methods of the Department; and, in an operating capacity, performing a complete physical accounting and auditing service for the Office of the Secretary, the Bureau of Foreign and Domestic Commerce, and the Office of Technical Services, and rendering a central fiscal advisory service to all bureaus and offices of the Department.

BUDGET ACTIVITIES

During fiscal year 1950, the Office of Budget and Management was requested by the constituent bureaus and offices of the Department to consider budget estimates totaling $529,463,032. After review by this Office, the Secretary of Commerce approved a total sum of $456,710,392 for transmittal to the Bureau of the Budget. In addition to the annual budget estimates, 26 separate supplemental budgets were reviewed, consolidated, and transmitted to the Budget Bureau. The Office participated in justification of these estimates before the Bureau of the Budget and the Congress and, once appropriations were made therefrom, prepared and controlled apportionments and in some cases allotments, and prepared and transmitted the budgetary and fiscal reports required by the Bureau of the Budget, the Treasury, and the General Accounting Office.

One of the basic budget activities carried on through the fiscal year was continued effort toward refinement and improvement of the performance budget. The patterns of activity categories were reviewed with repre-

sentatives of the Bureau of the Budget and staff members of the Appropriations Committees. Several of the old activity lists were substantially revised, resulting in new patterns which are considered to be much more representative of the work of the bureaus concerned. This work was carried on through the Department's Budget Officers Conference, which was quite active throughout the year on this and other budgetary and fiscal matters.

The Office of Budget and Management continued its cooperation with the Joint Accounting Committee of the Bureau of the Budget, the Treasury Department, and the General Accounting Office. The Accounting Systems Division of the General Accounting Office assigned several full-time representatives to the Department and began to review the Department's fiscal activities on a specific project basis. This represented a change in method from the general approach on which the intradepartmental committee on fiscal management was established and resulted in the dissolution of that committee and an adjustment of staff assignments in the Office of Budget and Management to provide a small staff to work with the representatives of the Accounting Systems Division. The initial work of this group was a comprehensive study of the financial structure of the National Bureau of Standards which resulted in the installation of a new fiscal system based on performance categories and designed to provide full financial support for all activities of the Bureau.. This group will continue to study the individual bureaus of the Department until the entire fiscal structure of the Department has been surveyed.

ORGANIZATION STUDIES

The Bureau of Public Roads was transferred to the Department of Commerce by Reorganization Plan No. 7 of 1949 as the first step toward implementation of the Hoover Commission's recommendation that the major nonregulatory transportation activities of the Federal Government be grouped together in the Department of Commerce. Subsequently, additional steps toward this objective were accomplished by Reorganization Plan No. 21 of 1950, which created the Federal Maritime Board and Maritime Administration within the Department and established the new position of Under Secretary for Transportation.

The Office of Budget and Management took an important role in the developments leading up to these transfers, including the preparation of justification materials, the preparation of pertinent testimony and correspondence, and frequent consultations with outside agencies, all of which activities involved extensive study of the organization, programs, and legislation of these agencies. The Office was also quite active in the integration of these units into the Department of Commerce and in planning and developing recommendations concerning the Department's activities in the over-all transportation field.

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The Office also played a strong part in connection with Reorganization Plan No. 5 of 1950, conducting negotiations with outside agencies and preparing supporting information and testimony as in the case of Reorganization Plan No. 21. Reorganization Plan No. 5 transfers to the Secretary of Commerce all authority formerly vested in other offices and organizational units of the Department, and makes possible complete objective review of the activities of the Department, with appropriate remedial action, from the Office of the Secretary level. Some actions have already been undertaken under this authority, including the transfer of the Commodity Standards Division from the National Bureau of Standards to the Office of Industry and Commerce, and the transfer of certain Maritime administrative activities to the central services of the Department.

Other important organizational activities in which this Office participated included the complete reorganization of the Bureau of Foreign and Domestic Commerce. This Bureau was strengthened in line with the recommendations of the Hoover Commission by consolidating the commodity units, and other organizational adjustments were made to prepare the bureau to meet its responsibilities in connection with the defense effort. In addition, there was a major organizational adjustment in the field service of the Weather Bureau, with a reduction from eight to five regional offices, and minor organizational changes were made in the Civil Aeronautics Administration, the Office of Technical Services, and the National Bureau of Standards.

MANAGEMENT IMPROVEMENT PROGRAM

The President's Management Improvement Program came into full stature during fiscal year 1950. The Secretary delegated chief staff responsibility for this program to the Director, Office of Budget and Management, and this office took the leading role in the development and promotion of the Department's program.

Primary responsibility for full implementation of the President's program was delegated to the heads of the primary organization units of the Department with stipulation that full use be made of the supervisory staff. The Department's responsibility was fixed to encompass the establishment of standards and guides for the primary unit programs, promotion and stimulation activities, review of primary unit plans and annual reports, follow-up of progress on schedules, providing assistance on specific management projects as requested, and making such independent audits as are required.

The management progress of the Department under this plan during the first year of its formal operation has been encouraging. The primary organization units of the Department have taken an active interest in the program and, in most cases, have pushed toward the fulfillment of its objectives. While it cannot be said that all units have performed capably

on the basis of optimum standards, it is believed that all units have made some progress and more is expected as the program develops.

The Council for Administrative Coordination, established by the Office of Budget and Management in 1947 to provide the bureaus and offices with a voice in the formulation of top management policy and practices, provided the framework through which the management improvement program was developed and promoted, and otherwise continued to serve a valuable purpose during the fiscal year.

SURVEYS AND PROJECTS

In addition to its work on the President's program, the Office of Budget and Management continued its usual management activities during fiscal year 1950. The following listing illustrates a few of the numerous management studies and investigations begun or completed during the year:

1. Completed study of staffing standards for payrolling, voucher auditing, property management and personnel activities to assist the primary units to achieve an effective operation and adhere to standards established by the Bureau of the Budget for these activities;

2. Began comprehensive analysis of the operations of the Office of the Comptroller of the Maritime Administration, which is responsible for the handling and expenditure of huge sums in connection with the Government's maritime program;

3. Conducted study of the dissemination of the technical publications of the Atomic Energy Commission and arranged for the Office of Technical Services to take over this service to the business public;

4. Participated with representatives of the Civil Aeronautics Administration in the development of a comprehensive reporting system for the Establishment of Air Navigation Facilities program, which is designed to show the progress of the program in terms of comparable physical and financial data;

5. Assisted in a study of inquiries for departmental services and decentralized to the departmental field offices all inquiries which could be answered in the field, resulting in better balance of workload and improved service to the public;

6. Initiated a survey of the activities and relationships of the primary organization units of the Department engaged in collecting, compiling, and disseminating flight information material for the purpose of determining the unit to have primary responsibility in this area;

7. Worked with representatives of the Division of Printing Services to eliminate the separate printing plants at the Bureau of Census and the National Bureau of Standards, installing a branch plant at Census and consolidating the plant at Standards with the central printing plant;

8. Conducted a study of the time and attendance practices of the Census

Bureau and installed an improved system which resulted in considerable savings; and

9. Participated in the formulation of plans, and in the preparation of legislation, for the proposed incorporation of the Washington National Airport.

ACCOUNTING DIVISION

The Accounting Division performs a complete fiscal accounting and auditing service for the Office of the Secretary and the Bureau of Foreign and Domestic Commerce. Workload statistics for the fiscal year are indicative of the work of the Division. These statistics show the Division issued 54,167 salary checks, processed 7,177 change slips, requisitioned and issued 11,189 bonds, processed 10,040 vouchers, prepared 8,645 schedules and other documents, and maintained 529 active general ledger accounts and 679 allotment ledger accounts. All work of the Office was maintained on a current basis, and required audits and reconciliations were made of tax, bond, and retirement accounts. The Division also took over the work in connection with the liquidation of the accounts of the war agencies, which continues quite active.

Table 1 represents the consolidated statement of moneys available and disbursed by the Department during the fiscal year.

Table 1.—*Consolidated Statement of Moneys Available and Disbursed by the Department*

Bureau or office	Total available appropriations and contract authorizations	Expenditures during current fiscal year
Office of the Secretary	$6,444,785	$5,070,324
Bureau of the Census	70,005,742	57,581,629
Civil Aeronautics Administration	312,900,438	165,439,170
Civil Aeronautics Board [1]	3,857,925	3,528,358
Coast and Geodetic Survey	14,959,911	12,994,397
Bureau of Foreign and Domestic Commerce	11,645,598	10,500,427
Maritime Administration	356,594,202	93,387,297
Patent Office	12,769,480	10,906,284
Bureau of Public Roads	1,842,702,071	500,286,859
National Bureau of Standards	36,902,236	24,436,668
Weather Bureau	29,020,308	25,998,821
Inland Waterways Corporation	522,000	427,163
	[2] 2,698,324,696	[2] 910,557,397

[1] The budget for this independent agency is included in that of the Department for purposes of administrative convenience.

[2] The difference between these 2 figures represents unliquidated obligations and unobligated balances. For example, the Bureau of Public Roads had unliquidated obligations of $611,000,000 and an unobligated balance of $731,000,000.

Office of Personnel Administration

During the fiscal year 1950, the staff facilities of the Office of Personnel Administration were devoted to the continuing development of the program to decentralize personnel administration in the Department on a controlled basis, with a view toward fuller realization of the objectives of optimum

utilization of personnel staff and improvement in efficiency and economy of operations. In addition, problems attendant upon large-scale reductions in force, integration of the personnel activities of two new bureaus, establishment and expansion of substantive programs, and the implementation of new comprehensive personnel legislation required constant attention.

Under the established policy of decentralized personnel management, the Office of Personnel Administration has performed the following staff functions for the Secretary:

1. *Staff planning,* including the formulation, issuance, and interpretation of policies, regulations, and standards to govern the administration of personnel activities throughout the Department;

2. *Staff review,* including inspections at all echelons, for compliance with Department policies, regulations, and standards, and to determine the adequacy of the personnel program at all levels in the Department; and

3. *Staff assistance,* including the rendering of advice and assistance on operating problems, as necessary, to primary organization units.

Associated with these staff functions, the "line" mission of the Office of Personnel Administration continued to consist of (1) performance of certain general personnel work for the Department at large, (2) provision of a central point of contact for Members of Congress, other Government agencies, the public, and others on personnel matters affecting the Department, and (3) provision of personnel operating services (through the Personnel Operations Division) on a consolidated basis to certain designated small offices to achieve for them the economies of large-scale operations and to eliminate duplicating overhead.

MANAGEMENT IMPROVEMENTS

Continued systematic review of personnel operations in the various primary organization units during the year resulted in many improvements in the methods of processing the voluminous paper work of personnel administration and, through increase in scope of the reviews to include consideration of substantive program activities, brought about greater consistency and increased effectiveness in the various personnel functions. The review program is designed to improve the general efficiency and economy of personnel operations, to make available to bureau personnel officers objective and impartial appraisals of their programs and current information as to new developments in the various personnel specializations, to ascertain and obtain compliance with Civil Service Commission and Department personnel policy and procedures, to assist personnel officers in arranging organization, staff, and procedures to operate effectively within staffing standards, and, in general, to facilitate the development and maintenance of technically sound, efficient, and progressive personnel programs in the primary organization units.

In addition to conducting the program for review of personnel operations of the primary organization units, the Personnel Methods Division advised

and assisted the staffs of the primary units in the installation of a new standard personnel-action processing and record system promulgated by the Civil Service Commission and the Bureau of the Budget. The system, now in operation in six bureaus and offices of the Department, has enabled elimination of many costly records and reports, more efficient processing of personnel actions, and savings in operating staff time.

Administrative review of personnel activities in the primary organization units was greatly improved by the initiation of a system of periodic site audits of personnel actions taken by the Department's bureaus and offices. The new audit system, involving detailed examination of personnel actions and related records at the site of actual processing operations, has made possible a more thorough review process, has facilitated the taking of corrective action by the primary units, and has eliminated the costly and time-consuming post audit of actions within the Office of Personnel Administration.

In accordance with the planned program of decentralization, and on the basis of successful performance of the functions of personnel administration previously assigned to the primary organization units of the Department, additional authority for the processing of personnel actions was delegated to various operating levels during the past year. To provide current and comprehensive information and instructions to the bureaus to assist them in the efficient and uniform administration of their increased responsibilities, this Office has continued to maintain the chapter of personnel regulations of the Department's Manual of Orders on an up-to-date basis, to prepare and distribute supplementary materials as required, and to provide interpretations of laws, Executive orders, decisions of the Comptroller General, civil-service rules and regulations, and Department personnel policy and procedure. Current maintenance of the personnel regulations of the Department required the revision of 15 Department and Administrative orders and the issuance of a new order establishing an Efficiency Awards Program.

To supplement these regulations, the periodic issuance of informational bulletins to bureau personnel officers and their staffs was continued, summarizing current regulatory changes, personnel policy decisions, new statutory requirements, etc., to keep them abreast of current developments. In addition, the Personnel Action Processing Guide, a manual presenting comprehensive information and instructions concerning the preparation and processing of all types of personnel actions and the maintenance of related records, which has proved to be effective in facilitating the accurate and expeditious processing of personnel actions on a uniform basis, was revised to incorporate new instructional materials and changes in statutory and regulatory requirements.

SPECIAL ACTIVITIES

Under the provisions of Reorganization Plan No. 7 of 1949, and Reorganization Plan No. 21 of 1950, the Public Roads Administration and the

United States Maritime Commission were transferred to the Department of Commerce as the Bureau of Public Roads and the Maritime Administration, respectively, The Federal Maritime Board being simultaneously established as an independent agency. Integration of the personnel activities of these two new bureaus with the Department's program of personnel management involved initial liaison activity, fact-finding surveys, and a planned program of advice and assistance to the new units in making necessary adjustments. A detailed survey of the operations of the Personnel Office of the Bureau of Public Roads resulted in the identification of numerous possibilities for improvement in the processing procedures, records, forms, and reports used by that office, with resultant savings in printing, maintenance, and processing costs. A similar study was made of the personnel activities of the Maritime Administration, which likewise revealed opportunities for improvement. In addition, as a special project, a comprehensive management survey was made of the complete operating organization and program of the Training Division of the Maritime Administration, in which about one-sixth of the Administration's entire staff is employed, and recommendations of major operating significance were presented.

In anticipation of the enactment of the Foreign Economic Assistance Act of 1950, which in part provides for technical assistance and capital investment in economically underdeveloped areas of the world, an interdepartmental committee was formed during the past year, to formulate uniform policies and procedures to govern the employment, by participating agencies, of personnel appointed for the international development program. The Chief of the Personnel Methods Division served as the Department of Commerce member of the interdepartmental personnel committee, and several staff members of the Office of Personnel Administration participated with various working groups thereof in the development of standard policies and procedures concerning position classification and wage administration, appointments, medical and health benefits, leave benefits, etc., looking toward the preparation of a manual of standard policies and procedures to guide the sundry agencies in administering personnel matters relating to their participation in the technical development program. The Chief of the Employee Utilization Division served as the Department of Commerce member of a permanent interdepartmental training committee established to consider the unique training needs of the technical development program. This committee, under the leadership of the Foreign Service Institute, is developing comprehensive plans for immediate and long-range general orientation training for program personnel.

At the request of the Secretary of Defense, the Deputy Director of Personnel was loaned to the Department of Defense to make a survey of labor problems in the Panama Canal Zone. This assignment covered 2 months and dealt with matters of considerable concern to the Department of Defense, State Department, the Panama Canal, and the Republic of Panama.

A comprehensive report on the subject, including numerous recommendations, was furnished to the Office of the Secretary of Defense.

On the basis of the results of a comprehensive survey of employee and supervisor opinion of current administration and uses of efficiency ratings, and the anticipated provisions of pertinent pending legislation, the Employee Utilization Division developed detailed plans for a new employee performance rating system for the Department. These plans, including policy and procedures, newly defined rating elements and means for evaluation, new adjective ratings, and revised rating forms, will be implemented upon approval of basic Federal employee performance rating legislation, and the issuance of related regulations by the Civil Service Commission.

Enactment of the Classification Act of 1949 required reappraisal of the Department's program of position classification and wage administration to facilitate identification, planning, and execution of necessary adjustments therein. New instructional materials were prepared for the guidance of the several primary organization units, and significant changes in coverage under the Act were discussed on an individual basis with the bureaus concerned. In a communication addressed to the heads of Department bureaus and offices, the Secretary of Commerce called particular attention to the need for judicious exercise of the broad powers delegated to the Department, and the increased administrative responsibility of bureau and office chiefs under the Act. To avoid duplication and administrative confusion, the Classification and Wage Division arranged for coordination and integration of its staff review activities with the Civil Service Commission's program, based on the new act, for post-auditing position classifications. Civil Service Commission post audits were scheduled in four bureaus of the Department, and arrangements were made to have a staff member of the Classification and Wage Division accompany and work with the Commission representative in each of these reviews.

EMPLOYEE PROGRAMS

Extensive practical training programs to increase the efficiency and effectiveness of employee work performance were conducted throughout the Department during the year. The various bureaus and offices conducted continuous programs of indoctrination training for new employees, refresher courses in typing and stenography, efficiency rating training, and supervisor and administrative management training in both the departmental and field services. Technical training courses were conducted in operation and maintenance of aircraft, flight training, aviation safety, traffic control, communications, meteorology, weather observation and forecasting, machine tabulation, docket-clerk training, and trade-mark examining. All these programs have contributed to improved employee work performance and increased efficiency of operations. The Department also continued its cooperation with the Civil Service Commission in connection with the admin-

istrative intern program designed to provide selected employees with work experience that will lead to the fullest possible development and use of their skills and administrative abilities.

The fiscal year 1950 saw the successful continuance of the Employee Suggestion and Honor Awards programs, and the establishment of an Efficiency Awards program in accordance with the provisions of Title X of the Classification Act of 1949. Operation of the suggestion program during the past year resulted in (1) the submission of 2,413 suggestions, (2) adoption of 142 suggestions, and (3) payment of $3,177 for suggestions which made possible an estimated annual dollar savings of $38,486 for the Department. A new issuance, the Meritorious Suggestions Digest, which describes briefly those employee suggestions adopted by primary units which may have further application within the Department or in other Government activities, was published and distributed to all bureaus of the Department and to 23 other Federal departments and agencies. The digest is designed to bring about wider consideration and use of worthwhile suggestions, and thus to increase the effectiveness of the program in achieving greater efficiency and economy. Exceptional and Meritorious Award certificates and gold and silver medals, and appropriate length-of-service awards were presented to recipients at the Second Annual Honor Awards ceremony attended by Government notables, Department officials, and families of award recipients. This year, 18 employees were selected to receive the Exceptional Service Award for outstanding contributions to the public service, the Nation, or humanity; and 92 employees were selected to receive the Meritorious Service Award for service of unusual value to the Department.

STATISTICS

The official tabulation of organization and employee strength of the Department from its establishment in 1903 through fiscal year 1950 is shown on table 2. On July 1, 1950, there were 49,877 paid employees in the Department including 5,876 part-time workers (9,789 employees who work without compensation are not included in this figure). In table 3 are shown the geographic distribution of employees by State within the continental United States and in the Territories and possessions, and the number and percentage of veterans included in each geographic total.

Office of Administrative Services

The Office of Administrative Services directs the application of administrative service policies and procedures throughout the Department, furnishes all administrative services required by the Office of the Secretary, the Bureau of Foreign and Domestic Commerce, and the Office of Technical Services and provides the other primary units of the Department with all

Table 2.—*Employment and Organization Changes in the Department of Commerce*[1] *From February 1903 to July 1, 1950*[2]

Bureau	1903	1904	1912	1917	1922	1925	1932	1935	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
Office of the Secretary	-------	125	158	172	183	125	201	141	159	179	216	286	366	355	365	390	703	958	728	698	662
Bureau of Corporations [3]	-------	62	129	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Bureau of Manufactures [4]	-------	12	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Bureau of Labor [5]	-------	100	93	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Bureau of Lighthouses [6]	-------	5,282	5,116	5,713	5,909	5,758	7,814	5,071	4,132	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Bureau of the Census	-------	1,393	1,335	1,247	1,664	2,687	4,043	3,914	2,196	1,728	[7] 12,687	8,671	6,936	4,925	4,600	[7] 6,489	5,861	4,411	4,315	[7] 2,733	[7] 2,849
Coast and Geodetic Survey	-------	314	344	790	978	992	1,280	3,439	985	1,347	1,329	1,521	2,097	2,781	2,415	1,924	2,160	2,285	2,628	2,645	2,455
Bureau of Statistics [4]	-------	63	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Bureau of Marine Inspection and Navigation [8]	-------	-----	-----	-----	-----	-----	-----	-----	1,011	958	924	1,013	-----	-----	-----	-----	-----	-----	-----	-----	-----
Steamboat Inspection Service [8]	-------	212	262	321	366	358	420	643	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Bureau of Fisheries [9]	-------	290	397	452	462	617	1,193	936	1,200	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Bureau of Navigation [8]	-------	75	82	167	230	240	192	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Bureau of Immigration [5]	-------	1,211	1,658	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Bureau of Standards	-------	71	280	518	968	768	1,035	709	926	946	988	1,190	1,720	2,267	2,326	2,311	2,262	2,522	2,809	3,288	3,112
Bureau of Foreign and Domestic Commerce	-------	-----	95	233	595	1,145	1,538	1,052	856	897	863	853	946	853	824	809	2,185	2,137	1,905	1,948	1,634
Children's Bureau [5]	-------	-----	15	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
U. S. Patent Office	-------	-----	-----	-----	-----	1,228	1,425	1,302	1,372	1,383	1,341	1,326	1,399	1,228	1,273	1,267	1,460	1,826	2,005	2,010	1,960
Bureau of Mines [10]	-------	-----	-----	-----	-----	971	882	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Civil Aeronautics Administration	-------	-----	-----	-----	-----	-----	272	2,685	-----	-----	-----	6,019	8,056	10,120	11,492	10,847	12,953	14,884	17,056	18,452	18,045
Radio Division [11]	-------	-----	-----	-----	-----	-----	189	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Federal Employment Stabilization Board [12]	-------	-----	-----	-----	-----	-----	28	9	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
U. S. Shipping Board Bureau [13]	-------	-----	-----	-----	-----	-----	-----	63	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Inland Waterways Corporation	-------	-----	-----	-----	-----	-----	-----	-----	3,447	2,950	3,212	3,137	2,544	2,602	2,667	2,021	1,852	1,573	1,551	783	840
Weather Bureau	-------	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	5,653	6,142	6,612	6,876	6,754	7,499	7,907	7,938	7,911	7,893
Office of Surplus Property [14]	-------	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	4,435	-----	-----	-----	-----	-----
Bureau of Public Roads	-------	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	4,018
Maritime Administration and Federal Maritime Board	-------	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	6,409
Total	[15] 10,125	9,210	9,964	9,613	11,355	14,889	20,608	19,964	16,284	10,388	21,560	29,669	30,206	31,743	32,838	37,247	[16] 36,935	[17] 38,503	40,935	40,468	[18] 49,877

[1] Created by act of Feb. 14, 1903 (32 Stat. 826), as Department of Commerce and Labor. Current bureaus and offices:

Office of the Secretary	1903 to present.
Bureau of the Census	1903 to present.
Coast and Geodetic Survey	1903 to present.
Bureau of Standards	1903 to present.
Bureau of Foreign and Domestic Commerce.	1912 to present—Act of Aug. 23, 1912.
Patent Office	1925 to present—transferred from Interior Department by Executive order of Apr. 1, 1925.
Inland Waterways Corporation	1939 to present—transferred from War Department, July 1, 1939.
Weather Bureau	1940 to present—transferred by Reorganization Plan IV, June 30, 1940.
Civil Aeronautics Administration	Do.
(Aeronautics Branch, 1927 to 1934—name changed to Bureau of Air Commerce, July 1, 1934 to 1938—transferred to Civil Aeronautics Administration Aug. 22, 1938.)	
Bureau of Public Roads	1949 to present—transferred to Commerce Department under President's Reorganization Plan No. 7, Aug. 20, 1949.
Maritime Administration and Federal Maritime Board.	1950 to present—transferred to Commerce Department under President's Reorganization Plan No. 21, May 24, 1950.

[2] On or about July 1 of each year. Prior to 1938, selected years only.

[3] Transferred to Federal Trade Commission, Mar. 16, 1915, by act of Sept. 26, 1914 (38 Stat. 718).

[4] Consolidated with Bureau of Foreign and Domestic Commerce upon its establishment by act of Aug. 23, 1912 (37 Stat. 407).

[5] Labor functions removed and placed in new Department of Labor by act of Mar. 4, 1913 (37 Stat. 736).

[6] Transferred to Treasury Department by Reorganization Plan II, July 1, 1939 (originally established as Lighthouse Service).

[7] In addition to the number of regular employees listed, the Bureau of the Census also employed the following numbers of temporary census employees to take special censuses:

1940	100,000 (approximation).
1945	31,226.
1949	6,424.
1950	12,450.

[8] Consolidated with and name changed to Bureau of Navigation and Steamship Inspection, June 30, 1932, and on May 27, 1936. Transferred to Treasury Department Mar. 1, 1942, by Executive Order 9083.

[9] Transferred to Interior Department July 1, 1939, by Reorganization Plan II.

[10] Transferred to Interior Department Apr. 23, 1934, by Executive Order 6511 of Feb. 22, 1934.

[11] Transferred to Federal Radio Commission July 20, 1932, by Executive Order 5892.

[12] Transferred to National Resources Planning Board by Reorganization Plan I, July 1, 1939.

[13] Transferred to U. S. Maritime Commission Oct. 26, 1936, by act of June 29, 1936 (49 Stat. 1985).

[14] Transferred to Reconstruction Finance Corporation Nov. 5, 1945, by Executive Order 9643.

[15] Only total figure available.

[16] During the 1946 fiscal year there were transferred to the Department of Commerce a large portion of the Foreign Economic Administration, part of the Smaller War Plants Corporation, the Office of Civilian Defense, and the Office of Production, Research and Development of Civilian Production Administration. All have been liquidated and the few continuing functions absorbed in the Department's regular organization.

[17] During 1947, segments of the Office of Price Administration, Office of War Mobilization and Civilian Production Administration were transferred to the Department and have been gradually liquidated.

[18] This figure does not include 9,789 employees who worked without compensation for the Department, nor are such persons included in other figures on the table. It does include 5,876 part-time workers who actually worked a total of only 1,359 man-months during June 1950.

Table 3.—*Geographic Distribution of Employees in the Continental United States and in the Territories and Possessions and Number and Percentage of Veterans included (as of Dec. 31, 1949)*

United States	Total number of employees	Veterans		Percent veterans
		Total number	10-pt. disabled	
Continental				
Alabama	586	244	21	41.6
Arizona	259	117	17	45.2
Arkansas	245	122	9	49.8
California	2,405	1,204	98	50.1
Colorado	602	300	33	49.8
Connecticut	137	82	16	59.9
Delaware	33	15	1	45.5
District of Columbia	11,600	4,275	477	36.9
Florida	852	549	34	64.4
Georgia	1,080	501	43	46.4
Idaho	278	136	11	49.0
Illinois	1,117	514	23	46.0
Indiana	497	218	17	43.9
Iowa	306	133	16	43.5
Kansas	553	193	13	34.9
Kentucky	247	116	16	47.0
Louisiana	740	377	21	51.0
Maine	144	79	6	54.9
Maryland	3,494	1,117	182	31.7
Massachusetts	369	208	35	53.7
Michigan	498	285	16	57.2
Minnesota	363	178	18	49.0
Mississippi	334	130	11	38.9
Missouri	1,847	691	58	37.4
Montana	459	222	20	48.4
Nebraska	354	144	11	40.9
Nevada	173	93	5	53.2
New Hampshire	68	30	4	44.1
New Jersey	190	106	20	55.8
New Mexico	382	180	24	47.1
New York	1,920	1,053	144	54.8
North Carolina	499	222	15	44.5
North Dakota	172	79	6	45.9
Ohio	737	436	21	59.2
Oklahoma	611	290	36	47.5
Oregon	690	325	16	47.1
Pennsylvania	676	267	33	39.5
Rhode Island	64	33	4	51.6
South Carolina	229	120	12	52.4
South Dakota	152	83	8	54.6
Tennessee	534	298	23	55.8
Texas	2,217	1,100	115	49.6
Utah	366	199	23	54.4
Vermont	72	33	3	45.8
Virginia	1,109	515	51	45.5
Washington	1,289	595	54	46.2
West Virginia	163	71	4	43.6
Wisconsin	244	105	7	43.0
Wyoming	238	128	17	53.8
Total (United States)	42,194	18,511	1,868	43.9
Territories and Possessions of the United States				
Alaska	1,907	892	26	46.7
Balboa, C. Z	136	105	4	77.2
Canton Island	71	41	----------	57.7
Guam	45	24	1	53.3
Hawaii	674	346	23	51.2
Midway	18	8	----------	44.4
Palmyra	24	10	----------	41.7
Puerto Rico	168	103	1	61.3
Swan Island, W. I	7	5	----------	71.4
Virgin Islands	15	12	1	80.0
Wake Island	73	44	3	60.3
Total (Territories and possessions of United States)	3,138	1,590	62	50.7

administrative services which such units have not been authorized to furnish themselves.

Principal organizational components of the Office of Administrative Services are the Division of Printing Services, the Division of Operating Facilities, the Special Services Staff, and the Office Services Staff. Major accomplishments of each are detailed below.

DIVISION OF PRINTING SERVICES

The Division of Printing Services is charged with reviewing and coordinating the printing, visual services, duplicating, and forms standardization for the Department. During the year it also performed similar services, in one form or another, for other agencies not a part of the Department. Principal among these were the Air Coordinating Committee, the Atomic Energy Commission, the Council of Economic Advisors, the Federal Trade Commission, and the National Security Resources Board.

Several special printing programs were continued and several new programs inaugurated during the fiscal year. Of those continued, the most outstanding was the Seventeenth Decennial Census. This program involved the expenditure of $1,500,000 covering the cost of approximately 1,500 orders and involving nearly 1 billion separate items. This program will continue during the fiscal year 1951. New printing programs inaugurated were those of the Bureau of Public Roads and the Maritime Administration.

The Division is composed of the following sections: The Printing Section which handles all relations with the Government Printing Office; the Duplicating Section; the Distribution Section which distributes, either internally or by mail or mail-messenger service, copies of all material issued by the Department; and the Forms Standardization Section which is charged with the review, standardization, and design of all forms.

The Division works very closely with the Office of Publications in order to carry out general policy as laid down by that office with regard to format of its publications, posters, exhibits, photographs, and all other visual media.

DIVISION OF OPERATING FACILITIES

During the fiscal year 1950 the Purchase and Supply Section placed 7,037 orders involving the expenditure of approximately $1,087,000. There were 227 contracts approximating $7,308,385 submitted for examination, by the several bureaus of the Department.

Also, during this fiscal year, 4,863 typewriters were repaired, overhauled, or cleaned by the Typewriter Repair Shop; the Stock Unit issued approximately $210,710 worth of stock to the various bureaus and offices of the Department; and 6,450 shipments, weighing a total of 425,964 pounds, were made by the Receiving and Shipping Unit.

A total of 586 "reports of excess property" and "reports of survey" were acted upon by the Property Unit containing an estimated acquisition value

of $2,668,672. Total fair or scrap value of property declarations by the Department to the General Services Administration was $363,546 and otherwise disposed of $350,685. Affirmations for property lost, destroyed, or stolen were acted upon in the amount of $222,645. An estimated $235,415 in direct savings was affected for the Department by filling 556 requisitions through the Property Utilization Program. Forfeited and seized property amounting to $10,000 was acquired for use by the Department, without cost.

During the fiscal year the Department Library provided 125,046 reference and loan services to patrons, prepared 228,796 records and processed and handled 450,612 publications. The cataloged collection numbered 342,194 books and bound publications. There were 3,071 periodicals currently received, including both foreign and domestic, official and nonofficial publications. Patrons who came in person for service numbered 26,441, of these 2,868 were from other Government agencies, 240 from nongovernment and international agencies, including businessmen and the general public, and 538 from universities and colleges. The number of reference requests answered, including those received by telephone and those which came by mail from many States and several foreign countries totaled 25,340.

The reorganization of the book and periodicals stacks was continued and unnecessary duplicate publications from both the cataloged and uncataloged collections were discarded.

The Business Service Check List, listing publications of the Department, was issued each week and the Library Reference List of selected acquisitions was published each month. Approximately 94,000 catalog and index cards were prepared for use in the Department of Commerce List of Publications.

As a whole, the Department is larger in this annual report than it was in the last report. The Department now occupies 3,439,572 square feet of space located in 30 buildings against last year's figure of 2,856,710 square feet located in 21 buildings. This increase was brought about by the transfer of the Bureau of Public Roads and the Maritime Administration to the Department and the expansion of the Census Bureau for the 1950 Decennial Census.

SPECIAL SERVICES STAFF

The Special Services Staff maintains an Information Center for the public and the bureaus and offices of the Department, whether housed in the main Commerce Building or another of 18 locations in Washington. In addition to the organizations comprising the Department, it performs like services for all other Federal contingents housed in the Commerce Building. These embrace the Air Coordinating Committee, Air Navigation Development Board, Inland Waterways Corporation, the new Government Patents Board, and other interdepartmental and quasi-official groups in which the Department is actively interested.

Organizational charts and directories for all component parts of the Department, necessary for the efficient operation of the Information Center, and 11,000 or more current personnel records essential to the locator system, were maintained.

The volume of work in the Information Center was increased during the past fiscal year by the addition of records covering the Bureau of Public Roads, transferred from Interior to Commerce on August 20, 1949. The Maritime Commission and the Federal Maritime Board, likewise, were made parts of the Department under date of May 23, 1950, their charts and personnel records, however, still are only partially in hand, and consequently service to them has been limited.

During the past fiscal year the Information Center handled more than 200 visitors a day, and furnished answers to, or referred to other sources, over 700 telephone inquiries each day. These questions covered a broad field, not necessarily confined to the functions of this Department, and frequently required research, especially in cases of requests from Members of Congress and of resident foreign missions. The number of visitors from other countries was noticeably larger than in previous years.

OFFICE SERVICES STAFF

The Office Services Staff provides a complete mail, file, and routing service for the Office of the Secretary, the Bureau of Foreign and Domestic Commerce, and the Office of Technical Services. It also furnishes internal pickup and distribution and special messenger service for the Office of the Secretary and to points outside the Commerce Building. The staff handles an average of 225,000 pieces of mail per week altogether. This staff also controls the motor pool, consisting of passenger cars, station wagons, and trucks. The teletype station servicing the Department is also under its jurisdiction.

BUREAU OF THE CENSUS

For the seventeenth time since the founding of our Government, a census of the entire population has been successfully completed. This undertaking involved the visiting of almost 46 million homes by a force of about 132,000 enumerators to obtain information on 150.5 million persons, 5.6 million farms, and 45.7 million dwelling units. Information on irrigation and drainage enterprises was also obtained. Similar information was also obtained for the Territories and possessions of the United States. The compilation of the results of these censuses was just beginning at the end of the year.

In addition, the field canvass of more than 2½ million retail, wholesale, and selected service establishments for the 1948 Census of Business was completed and preliminary reports for each State and county were issued during the year. Final reports of the 1947 Census of Manufactures were

made available except for two volumes which were at the Government Printing Office. Censuses of Business and Manufactures covering the year 1949 were taken in Puerto Rico at the request and expense of the Puerto Rican Government. Planning for the 1952 Census of Governments was started.

The various current statistical series were continued with minor modifications. An annual survey of manufactures, covering 1949, was taken for the first time. Other current statistical reports covered foreign trade, population totals and characteristics, State and local government finances and employment, retail and wholesale trade, industrial data, and other subjects.

SEVENTEENTH DECENNIAL CENSUS

FIELD OPERATIONS. A total of 491 field offices were used for the decennial census field operations. The 457 district offices (including 67 permanent offices and 239 that had been used for the Census of Business) reported to 14 area offices. Two census area offices and 18 district offices were established in the Territories and possessions to conduct the enumeration in these outlying areas. Large-scale training of the field organization began in January with the selection of experts in population, housing, and agriculture who trained a group of 300 expert trainers, who in turn were responsible for instructing the 8,700 crew leaders. The crew leaders were used to recruit, train, and supervise the 132,000 enumerators who covered the 230,000 enumeration districts. A staff of approximately 7,000 clerks was engaged in the field to edit and check schedules, to prepare preliminary population announcements, and to handle necessary administrative matters.

The questionnaires and procedural materials needed for this census were determined in final form and were printed and distributed before the end of February. By the first week of February, all field offices were open and the staff was participating in the preliminary activities for the Seventeenth Decennial Census. Virtually the entire enumeration in continental United States had been completed by the close of the fiscal year. The enumeration in the Territories and possessions was also completed by that time.

Furnishing supplies and work materials to 491 field offices which were active for such a short period of time, was a major problem. Appropriate quantities of initial office supplies were determined in advance, were prepackaged by the Federal Supply Service at various centers, and forwarded to each office when the office was opened. Other package units of standard forms and other materials were prepared and sent to each office by the Bureau. Approximately 230,000 enumerator portfolios were assembled with the specific forms, schedules, identification items, maps (400,000 in all), and administrative records as required for each enumeration district. The agriculture self-enumeration schedules, which were used in 41 States, were prepared in bundles in Washington and Chicago, addressed to in-

dividual postmasters, and turned over to the Post Office Department for delivery to farmers through 29,800 post offices. The farmers to whom these schedules were delivered were requested to fill in the information and hold the forms until the enumerator came to their homes, thereby expediting the gathering of agriculture information.

PUBLIC RELATIONS. The successful conduct of the census was expedited by the fine cooperation of the public, who were informed of the purposes and methods of the census through a public relation program which extended over 2 years. Until January 1, 1950, informational materials were distributed to press wire services, correspondents, newspapers, radio and television stations, magazines, business and trade papers, agricultural periodicals, and other media of mass communication. Later the 491 field offices were supplied with kits of materials for newspapers, radio stations, and public speakers for local use. The Advertising Council, Inc., cooperated in many ways. For example, the Council prepared and distributed to newspapers a kit of advertising materials pointing up features of the census and urging public cooperation. The Department of Agriculture cooperated in the distribution of a kit of 50 releases designed for local use by more than 2,000 county councils and county agents of that Department. With the cooperation of the National Education Association and the United States Office of Education, more than 60,000 copies of a booklet on the census were sent to school teachers for use in classroom projects.

SPECIAL PROGRAMS. As an integral part of the decennial census, certain areas were set aside for special treatment to obtain experimental data on the relative efficiency of alternative enumeration procedures under actual field conditions and on the quality of the census results. For example, in part of one district the enumeration was carried out by school teachers in an effort to determine the advantages and disadvantages of using this type of field organization; in 3 districts comparative tests were conducted using 2 alternative methods of enumeration involving the use of a separate schedule for each household as against the use of the regular line schedule, on which provision is made for enumerating 30 individuals. In other districts, the assignments of approximately 1,500 enumerators were made in such a way as to permit comparison between the results obtained by different types of enumerators, so that the effect of such enumerator characteristics as age, sex, education, employment background, and attitude toward job, could be measured. Data were also obtained so that the effect of the enumerator on the responses obtained could be evaluated. Finally, a post enumeration survey was planned and field work was started involving the careful recanvassing of about 4,000 small areas throughout the United States by specially trained enumerators to determine the proportion of persons, dwelling units, and farms either missed or improperly included in the regular census enumeration. The post enumeration survey also involves reinterviewing about 25,000 households and 10,000 farms to

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get information which will enable the Bureau to evaluate the quality of the answers appearing on the regular census schedules for selected questions and to find reasons for discrepancies.

A Survey of Residential Financing was undertaken to obtain information needed for the Census of Housing; the sample design and enumeration procedures were completed early in 1950 and the field work was under way before the end of the fiscal year. Contracts were made with 217 local housing authorities to make advance tabulations from the Census of Housing for selected units defined as substandard by Public Housing Administration. Contracts were also made with urban redevelopment agencies of three cities which needed advance block tabulations from the Census of Housing.

In order to present statistics for areas larger than counties, but smaller than States, State economic areas were developed for use in presenting results from the Censuses of Population, Housing, and Agriculture as well as from other sources. The Bureau of Agricultural Economics of the Department of Agriculture and other agencies cooperated in the establishment of these areas.

OTHER MAJOR CENSUS OPERATIONS

1948 Census of Business. The field canvass and the editing and coding of 1948 Census of Business reports were completed. Preliminary data were issued for all counties in the United States and for Alaska and Hawaii. A series of preliminary State reports and a number of special reports summarizing the preliminary data presented in county releases were also issued. Final State bulletins, a series including reports on a number of specific subjects, and a series of trade bulletins were being prepared.

The post enumeration survey for the 1948 Census of Business was carried out in November 1949. This survey was designed primarily to measure the accuracy of coverage and to test the effect of the procedures used in the census; in addition, this survey collected information on expenditures for new construction and new equipment in 1948.

1947 Census of Manufactures. Most of the final reports of this census were completed and issued, including 70 pamphlets covering about 400 industries; 49 State reports; Statistics by Industry (vol. II); and Statistics by States (vol. III). The General Summary (vol. I) and the Product Supplement were at the printer's.

A check on the coverage of the 1947 census by means of an area sample survey was completed. Indexes of the physical volume of manufacturing output for 1947 relative to 1939 were being prepared for future publication.

1952 Census of Governments. By the end of the year, tentative plans had been prepared as to subject coverage, basic procedure, timing, and form of publication of most of the basic data to be collected by the 1952 Census of Governments.

A bill "to provide for a periodic census of governments" was prepared and by the end of fiscal 1950 the measure (H. R. 7265) had been passed by the House and reported favorably by the Senate Committee on Post Office and Civil Service. It subsequently became law (Public Law 767, 81st Cong., approved September 7, 1950).

CURRENT STATISTICS

1949 ANNUAL SURVEY OF MANUFACTURES. A survey covering the activity of manufacturing establishments during 1949 was taken on a mandatory basis with funds provided by the National Security Resources Board. All large plants and a sample of small plants were covered. By the end of the fiscal year, reports had been received from virtually all establishments included in the survey.

INDUSTRY STATISTICS. Fifty-four commodity surveys were conducted, of which 31 were on a monthly basis, 7 on a quarterly basis, and 16 on an annual basis. In addition, one monthly and two annual surveys were conducted on a service basis with funds provided by sources outside the Bureau.

FOREIGN TRADE STATISTICS. The release of current information on the foreign trade of the United States was continued. Plans were being formulated for the withholding from publication of foreign trade information which would affect the security of the country.

POPULATION STATISTICS. Estimates and projections of population for the United States, States, Territories, and Possessions and certain other areas were issued throughout the year. The Bureau's Current Population Survey produced monthly estimates of the labor force, employment, unemployment, and various related data. For example, information was published on school enrollment, marital status and characteristics of households, internal migration, and income of families and persons. At the request of other Government agencies, data were obtained on orphans, farm wage workers, sugar supplies in private households, and other items.

INTERNATIONAL STATISTICS. The Bureau intensified and expanded its program of international cooperation with foreign governmental and nongovernmental agencies. Almost 200 foreign census and statistical officials from 50 countries observed and studied our census methods. Included in this group were 27 chiefs or directors of foreign statistical offices as well as 36 representatives of foreign private industry.

PERSONAL CENSUS RECORDS. The demand for personal information from census records continued at a high rate. Information was supplied in 108,484 cases in response to requests for purposes of establishing claims for Social Security benefits, retirement, derivative citizenship, and other purposes.

PERSONNEL

At the close of the fiscal year, the Bureau had 12,702 employees. Of these, personnel in the departmental service consisted of 2,311 permanent

employees and 2,717 holding indefinite or temporary appointments. The field staff consisted of 7,676 employees, almost all of whom held strictly temporary appointments, with compensation on a per diem or per hour, when actually employed, basis. Peak employment during the year was reached in April 1950 when the Bureau had 150,319 employees, of whom 147,264 were employed in the field offices and on the Seventeenth Decennial Census program.

CIVIL AERONAUTICS ADMINISTRATION

During the fiscal year 1950, excellent progress was made in all programs of the Civil Aeronautics Administration, in both domestic and international fields.

AIR NAVIGATION AIDS

Important advances were made in implementing the "common system" of air traffic control and navigation to benefit all users of air space—civilian and military. At the end of the fiscal year, of the approximately 400 very high frequency omnidirectional radio ranges (VOR) required to cover the United States, 270 had been fully commissioned, 30 others were operating on a test basis, and construction or relocation of an additional 39 was begun. A total of 94 instrument landing systems (ILS) had been fully commissioned and 4 were operating on a test basis at the close of the year.

Radar was coming into wider use in civil aviation. Airport surveillance radar, which gives the traffic controller a continuous "picture" of air traffic in his area, was purchased for use at 49 airports with high traffic density. Precision approach radar, which "sees" the airplane as it comes down toward the airport for a landing and enables the ground controller to advise the pilot of any necessary changes in heading or altitude, was contracted for to supplement the surveillance equipment at 22 airports. The two types of radar, used together, constitute a "ground controlled approach" system, or "GCA." Four such installations were operating at New York La Guardia, Chicago Municipal, Washington National, and Los Angeles International Airports, and one at Atlanta was operating on a test basis.

Procurement contracts were awarded for a total of 460 complete units of distance measuring equipment (DME) designed to give accurate information as to an aircraft's distance from the airport runway or the omnirange.

FEDERAL AID AIRPORT PROGRAM

By June 30, 1950, the end of the fourth fiscal year of the 12-year, $520,000,000 Federal aid airport program, the Administrator of Civil Aeronautics had approved tentative allocations for 1,770 projects at 1,132 airport locations, amounting to $142,122,302, to be matched by sponsors' contribu-

tions in the amount of $152,189,916, making a total program of $294,312,218. As of the same date, the Administrator had entered into actual grant agreements for 1,378 projects at 898 locations, involving $122,451,025 in Federal funds.

SAFETY PROGRAM

In the field of safety, increased emphasis was placed on closer industry relations to increase self-regulation, and training to keep personnel abreast of the rapid technological advances in the aviation industry.

Indicative of the increased complexity in aircraft production problems were the advances made in engine certification. Of the 24 new engine models approved, 2 were turbine, with 5,000 pounds thrust, and 1 was a rocket engine having 1,000 pounds thrust per second for 12 seconds. In addition, 3 turbo-jet engines were being readied for civil use during the coming year.

An intensive program was completed to prepare CAA personnel and the aviation industry for the problems faced in the civil certification of jet transports.

Undoubtedly, one of the contributing factors to the excellent safety record of the scheduled air carriers during 1949 was the emphasis placed by the industry and CAA on preventive maintenance. Effort was also expended on improving the maintenance standards of the irregular air carriers and in establishing standards for their operation as nearly identical to those of scheduled operations as practicable.

Toward greater safety in private flying, the use of modern radio navigational aids and approved safety devices such as stall warning indicators and crosswind landing gear was encouraged.

RESEARCH AND DEVELOPMENT PROGRAMS

Firms engaged in industrial flying operations numbered approximately 2,000, performing such activities as dusting, spraying, seeding, patrolling, and some seventy-odd other jobs. The CAA and the United States Department of Agriculture, in cooperation with the National Flying Farmers Association and other organizations, sponsored the development of an agricultural airplane prototype. Texas Agricultural and Mechanical College contracted for the development work and the aircraft was due for flight testing by the end of 1950.

At the Technical Development Center at Indianapolis, investigations of baggage compartment and power plant fire hazards were conducted. The first experimental self-sealing, breakaway fuel line coupling, which will prevent fuel spillage in the event of a crash, was developed and tested. A flammability reference scale was developed to aid industry in developing safer and less flammable lubricating oils and hydraulic fluids. A method for testing flexible and ruptureproof fuel tanks was developed and submitted to the industry.

The Aeronautical Center at Oklahoma City made extensive studies in connection with the high incidence of head injuries in personal-type aircraft and, to eliminate as much of this hazard as possible, designed a practical shoulder harness which is now being tested by one of the large manufacturers of personal-type aircraft. A major contribution to airline safety should result from the center's studies of explosive decompression, designed to protect passengers in pressurized cabin accidents and to improve facilities for supplying emergency oxygen to the passengers.

In the field of aviation education, assistance was given to all 48 States, the District of Columbia, and the Territories of Alaska and Hawaii, at the request of State and local school authorities. Instructional material and information for aviation education programs were also sent, on request, to England, Sweden, Mexico, Japan, New Zealand, Greece, Switzerland, India, South Africa, and Australia.

WASHINGTON NATIONAL AIRPORT

The number of scheduled airline passengers enplaning and deplaning at the Washington National Airport, operated by CAA, during the fiscal year reached a new all-time high of 1,412,254. This is an increase of 101,332 over the previous high and shows an increase of approximately 105 percent during the past 5 years.

INFORMATION SERVICES

Model airport exhibits were sent to the International Bicentennial Exposition at Port-au-Prince, Haiti, and the International Trade Fair at Izmir, Turkey.

In cooperation with the Department of Defense, an educational campaign was undertaken to encourage the filing of flight plans by pilots entering defense areas.

INTERNATIONAL

Today, 7 United States scheduled air carriers, using 523 aircraft, serve 239 foreign points on all the continents of the world and are certificated to operate 203,678 miles of international routes. In addition, there are 83 irregular United States flag carriers operating 175 aircraft. Good progress was achieved in providing essential ground services and facilities on the air routes served by these carriers.

United States technical assistance to foreign governments proved of great importance in promoting the development of underdeveloped, friendly countries, in broadening markets for United States manufacturers, and in increasing flexibility and economy of operatons of United States flag carriers through international standardization of procedures and equipment.

Several hundred demonstrations for foreign governments and industry representatives were conducted in the European area with a CAA airplane using the latest in United States electronic navigation equipment adopted by

the International Civil Aviation Organization as an international standard. More than 20 instrument landing systems have been installed in the European area and periodic checks are performed by the CAA crew at the invitation of the governments concerned. The first instrument landing system in Central and South America was installed at Buenos Aires. Five VOR facilities have been loaned to European countries for evaluation on their airways.

Facilities necessary for extension of Pan American World Airways routes across Yugoslavia to Greece were installed by the Greek Government and a CAA mission.

The CAA assisted in every way possible in establishing the civilian airlift operations across the Pacific to the Korean theater, which began during the last week of the fiscal year, and in other military requirements when requested to do so. CAA's air traffic control and communications system collaborated with the military on provisions for identification of flights into strategic areas.

COAST AND GEODETIC SURVEY

The Coast and Geodetic Survey performs a wide variety of essential services for the promotion of commerce, for the development of our national resources, and for the compilation of certain basic engineering and scientific data. Normal functions of the Bureau, which include marine, aeronautical, geodetic, geomagnetic, and seismologic functions, play an important part in the protection of life and property at sea and in the air. During the year major emphasis was given to the extension of surveys in Alaska in view of the strategic importance of the area.

HYDROGRAPHY AND TOPOGRAPHY

Seven of the nineteen survey vessels of the Bureau operated in the western Aleutian Islands, along the Alaska Peninsula, in Bristol Bay, in Prince William Sound, and in southeast Alaska, making surveys and collecting basic data for the compilation of new nautical charts and for modernizing existing charts. A field party along the Arctic coast continued with surveys requested by the armed services. Much of the work in Alaska is in isolated regions and each survey party must operate as an expedition.

Other surveys were carried on at various places along the Atlantic, Gulf, and Pacific coasts as part of a program of modernizing inshore surveys. Wire-drag investigations of sunken wrecks along the Maryland and Delaware coasts were continued.

Aerial photographs, as a preliminary to the compilation of topographic maps, were taken of coastal areas along the Atlantic and Gulf coasts and in Alaska and of 44 airports in the United States, using the Bureau's 9-lens camera. Six airport survey parties made original or revision surveys at 120 airports for use in compiling instrument approach and landing charts and

airport obstruction plans. Plans for 62 additional airports were published during the year, bringing the number available to 363.

GEODESY, TIDES, AND MAGNETISM

The basic network of horizontal and vertical control was extended in various parts of the United States and in Alaska. Major field activities consisted of a continuation of surveys in the Missouri River Basin, for flood control and reclamation studies, and in western Alaska. Several special geodetic field projects were in progress to provide data for studies of horizontal earth movement in earthquake regions; settlement in the Long Beach, Calif., area; and deflection of the vertical from gravimetric observations.

Tidal observations were made at 137 seaports in the United States and possessions and in foreign areas for the study of the variation in mean sea level and for tide prediction. The comprehensive current survey of Tampa Bay, Fla., was completed and the compilation of tidal current charts for the area begun. A current survey at the entrance to Grays Harbor, Wash., was completed and a current survey in Rosario Strait, Wash., was undertaken. The program of collecting temperature and density of sea water data at tide stations was extended to include 25 additional stations, bringing the total to 123.

Study of the earth's magnetism is a continuing function of the Coast and Geodetic Survey. The magnetic survey of the United States furnishes data for determining the geographic distribution of the magnetic elements for use in charting and for retracting old property lines. Continuous changes in the principal magnetic elements were recorded at seven magnetic observatories. Compilation of the 1950 world isogonic chart was completed, and the Bureau continued its assigned function as the repository for world magnetic information.

SEISMOLOGY

The seismologic program of the Bureau is on a broad cooperative basis. A network of 53 strong-motion seismographs is operated in the seismically active western areas. In addition, sensitive seismographs are operated at key stations directly or in cooperation with universities and private institutions, and liaison is maintained with foreign stations and international seismological associations for the exchange of seismologic data. Through these and other communications facilities provided by the Department of State and other agencies, earthquake-location activity resulted in the receipt of 8,500 earthquake messages and the announcement of the locations of 570 earthquakes. The most notable United States earthquake during the year was a disturbance that sheared off about 100 oil wells in the Terminal Island region of Long Beach, Calif.

The system for warning the Hawaiian Islands and other areas of approaching seismic sea waves was maintained. The system is centered at Honolulu and employs the reports of three of the Bureau's seismograph

stations, two private stations, several tide stations of the Bureau, and military and civil communications networks. Several successful operations of the system were carried out following submarine earthquakes, but no damaging sea waves developed.

NAUTICAL AND AERONAUTICAL CHARTS

Production and distribution of nautical and aeronautical charts and related publications continue to be major activities of the Bureau. Improvements in both classes of charts are constantly being made. New navigation techniques which employ electronic methods have necessitated the design of new types of charts and the modernization of existing charts.

A total of 911 different nautical charts, ranging from large-scale harbor charts to small-scale sailing charts, was printed during the year. Nearly 900,000 copies of nautical charts were distributed, requiring over 8,000,000 hand corrections for essential information to bring the charts to date of issue. Loran lines of position have been added to many of the offshore charts along the Atlantic and Pacific coasts, and this program is being extended to the larger-scale charts for use in inshore and coastwise navigation. The program of charting the Gulf Intracoastal Waterway was continued. Of the 33 charts to be published of the waterway, 18 have been completed and 7 were nearing completion at the end of the year.

To meet the needs of civil and military aviation, the Bureau has provided several series of aeronautical charts, totaling 914 charts in all. Important improvements made in the sectional aeronautical charts include the addition of omnirange data on the face of the chart and a tabulation of airport and other navigational information on the reverse side. Four of a new series of seven aeronautical route charts to cover the United States were completed. These charts, at a scale of 1: 2,000,000, are specially designed for long-range navigation to meet the requirements of high-speed air carriers operating at high altitudes.

TECHNICAL IMPROVEMENTS AND COOPERATION

A number of improvements were made in instruments and techniques that will result in higher accuracy and greater efficiency in the work of the Bureau. Notable among these was the design of a new master controller for the electronic position indicator for use in offshore hydrographic surveying. Performance tests have indicated that, because of the greater circuit stability of this model, fewer checks are required. In the field of photogrammetry a number of refinements in techniques have been made that will result in an acceleration of topographic mapping of difficult terrain. Another notable improvement was the development, in cooperation with the Naval Ordnance Laboratory, of a new induction-type magnetometer adapted to aircraft use, which opens up the possibilities of airborne magnetic surveying of ocean areas and other regions inaccessible by ordinary methods. Wider application has been made of automatic computing ma-

chines to the activities of the Bureau, which require large volumes of computations and tabulations.

The Bureau continued its cooperation with national agencies and with foreign governments and international organizations through new and continuing interagency projects, cooperative agreements, liaison, exchanges of information, and training of personnel, as provided by existing law. It participated for the tenth consecutive year in the program of cooperation with the American Republics, sponsored by the Department of State. During the year 11 new training grants in Coast and Geodetic Survey methods were awarded to representatives from 9 countries.

Under the Philippine Rehabilitation Program, the Bureau maintained a staff of experts in the Philippines to assist in field survey operations, to aid and advise in the organization of a Philippine Coast and Geodetic Survey, and to train selected groups of Filipinos. At the end of the year, this program was terminated and all operations transferred to the Philippine Government.

PERSONNEL CHANGES

The Department notes with regret the retirement from active service on April 7, 1950, of Rear Adm. Leo Otis Colbert, director of the Coast and Geodetic Survey. Admiral Colbert's service with the Bureau dated back to 1907 and as director to 1938. On May 16, 1950, Admiral Colbert was succeeded as director by Rear Adm. Robert F. A. Studds.

BUREAU OF FOREIGN AND DOMESTIC COMMERCE

The Bureau of Foreign and Domestic Commerce was created to foster, promote, and develop the foreign and domestic commerce of the United States. It is currently composed of the Office of Business Economics, Office of Industry and Commerce, Office of International Trade, and Office of Field Service.

The Bureau discharges its functions both through direct service to the business community and through its specialized contribution to Government policies and programs affecting the economy and American business. These functions are carried out on the basis of (1) a fund of statistical and other information, relating to business and to the economy generally, which is evaluated, interpreted, and analyzed for widest possible use; (2) continuing surveys of trends through which the changing needs of business are anticipated and on the basis of which the Bureau's programs are modified; and (3) an intimate knowledge of industry and trade both at home and abroad.

Office of Business Economics

The national economy continued to operate at a high level throughout fiscal year 1950. By use of its business indicators—national income, national product and the balance of international payments—the Office of

Business Economics was able to determine the nature and measure the extent of the recession which had influenced business programming and economic activity after the inflation of 1948.

A period of relative stability followed the end of the general business decline early in the first half of fiscal 1950. Thereafter, business optimism was gradually regained as favorable reports on the business outlook indicated that high production, income, and employment would continue for the foreseeable future. By early 1950 a strong upward trend had set in and the national economy was again advancing toward new peaks as the Korean incident broke upon the world at the end of the year.

CURRENT BUSINESS ANALYSIS

Business interest in OBE's monthly journal—Survey of Current Business—continued to increase, with paid circulation mounting to the highest point in the last decade. This reflected a successful effort to meet the needs of business concerns and trade journals, their economists and advisers, for timely and meaningful presentation of the economic indicators developed in OBE. While providing a succinct report on the current business situation plus interpretative economic articles of lasting significance, the Survey of Current Business also furnishes private enterprise and Government with 40 pages of business statistics covering more than 2,600 series on a recurring basis. Included in this magazine each quarter are the national income and national product figures; the balance of international payments—with a breakdown of transactions by major areas; surveys of business intentions to invest in new plant and equipment; and data on the size of the business population, incorporating the rate of establishment and discontinuance. On a more frequent basis of reporting are such other vital business facts as retail sales, personal income and its source, business inventories, dividend payments, and new orders.

This year's presentation of the OBE annual economic review, entitled "The Economy in Adjustment," included an over-all appraisal of business and economic developments in calendar 1949 supported by incisive analyses, statistics, and graphic material on income, prices, production, agriculture, construction, investment, employment, and foreign and domestic trade.

Detailed coverage of the national income statistics, inaugurated with the July 1947 National Income Supplement, was continued with the publication of comprehensive data through 1949. The July 1950 National Income number of the Survey of Current Business, when used with the previously published Supplement, provides a complete and annotated record of national income and product statistics back to 1929.

Sales of the 1949 Statistical Supplement to the Survey of Current Business have broken all previous records. That publication provides an historical record of the more than 2,600 statistical series appearing monthly in the magazine itself. In the March 1950 issue of the Survey, monthly

averages for the year 1949 were included for use in conjunction with data appearing in the Supplement. Quicker and more efficient research is expected to result from this innovation, which will be continued.

BALANCE OF INTERNATIONAL PAYMENTS

Foreign economic developments were reflected in the balance of international payments—a basic tool for analyzing the United States position in world trade which OBE has maintained since 1922. In this series of quarterly reports OBE presents the facts as to the amounts the United States is contributing to and receiving from other nations. Current account transactions included are merchandise trade, transportation, travel, income on investments, private and governmental services and the various foreign-aid programs. Capital movements and the exchange of gold are also recorded.

The balance of international payments provides essential information for use in determining the impact of international transactions on the domestic economy. Together with other measures, such as national income and product, these accounts also present basic data necessary for evaluating the extent and character of the existing international disequilibrium and of cumulative progress toward stabilization.

An authoritative record of United States participation in world trade dating from World War I has now been provided in OBE publications which are still currently available—the wartime bulletin entitled "The United States in the World Economy" and two recent reports on "International Transactions of the United States during the War, 1940–45" and "The Balance of International Payments of the United States, 1946–48."

Interest in foreign investments increased during the year as Congress held hearings on Point Four legislation to furnish United States technical assistance in the economic improvement of underdeveloped regions. To meet the demand of business and government for official information in this field, OBE published a report on the size and scope of private United States direct investments abroad.

At the same time that developments abroad made the regular OBE data on United States Government international programs increasingly timely, OBE's quarterly and supplementary reports were providing these facts on a regular schedule. As the central collecting and compiling unit for reports on all operations of the United States Government abroad, the Office of Business Economics compiles and makes available data on Government cash transactions, procurement activities, and rehabilitation commitments.

MARKETING AIDS

Market analysts and business economists continued to utilize the OBE series measuring the flow of goods from producers to consumers. Current business reports series covering manufacturers, wholesalers, and retailers

include monthly data on orders, sales, and inventories. Pertinent articles appearing in the Survey of Current Business assayed the demand for producers' and consumers' durable goods, providing additional source material for analysts in determining commodity trends. Another marketing study on the relation of consumption expenditures to income sensitivity emphasized the selectivity consumers exercise in their purchases of typical products when income is increased or cut.

Coverage of regional economic trends was increased with the publication of an analytical report on State income payments to individuals, which highlighted the major changes in the geographic distribution of income that have occurred in the postwar period and over the longer span since 1929. OBE estimates of the business population of each State were published for the first time in December 1949.

The Nation's housing situation was the subject of a special economic appraisal entitled "Family Formation and the Demand for Residential Construction." This study pointed to the great improvements which have been made in housing the American people during recent years and to the continuing sources of construction demand.

OTHER ACTIVITIES

While furnishing all business with valid economic data, OBE has continued to contribute to the special needs of small business for essential information. In the past year it has published reports on the capital requirements, sales, and investment trends of new manufacturing firms.

Professional income studies, for use in connection with OBE's personal income series, have been pushed ahead with the publication of reports on incomes of dentists and lawyers. A survey of the medical profession was inaugurated during the fiscal year. Additional information on these and other independent professional groups will be published as rapidly as possible.

OBE has continued to cooperate with other agencies and the Congress by providing background information useful in the formulation of national economic policy. At the request of the Joint Committee on the Economic Report it presented a monograph on "Investment and its Financing" which was later published by the committee in connection with its hearings in that field.

The success of the Office of Business Economics in providing a unified statistical picture of the national economy has attracted wide attention abroad. Economic research officials from many countries have come as in-service trainees, under an interdepartmental program for international sharing of technical knowledge, to study the methods developed in this Office. More than 25 trainees from many nations were accepted for training in balance-of-payments and national income techniques during the year.

Office of Industry and Commerce

Early in the fiscal year, in accordance with recommendations based upon a study which had extended over a considerable period of time, the commodity research of the Bureau in three industry fields was consolidated in the Office of Domestic Commerce. On the basis of satisfactory experience in these three areas, the process of consolidation was extended late in the fiscal year to all industry analysis. This function was accordingly wholly removed from the Office of International Trade and consolidated in the other office, which at the same time was reorganized as the Office of Industry and Commerce. Because of the close relationship of export control and commodity analysis functions, export control was also transferred to the Office of Industry and Commerce. Activities in export control declined substantially during the fiscal year and have been reported upon in detail in a separate series of quarterly reports.

INDUSTRY DIVISIONS

The scope of work performed in this segment of the Office was considerably broadened as the consolidation already mentioned proceeded and as the work of the Construction and Transportation Divisions was administratively associated with that of the other industry divisions. Apart from the program changes naturally flowing from consolidation of the foreign with domestic research coverage, the Office's program continued along previously well-established lines.

Under the publications program 10 of the industry divisions continued the publication of periodic industry reports available on a subscription basis. In the World Trade In Commodities series, in connection with the consolidation of commodity work was transferred from the Office of International Trade, more than 500 reports were issued. The same staff also prepared 22 feature articles and 500 news items for the Foreign Commerce Weekly, responsibility for which was not affected by the consolidation.

During the year, more than 200 special reports and listings of informational sources on individual commodities were released. Approximately 4,000 mail inquiries were answered monthly, in addition to a large number of personal visits and telephone calls from businessmen. Numerous replies, tabulations, and analyses were prepared in response to inquiries from Members and committees of Congress.

There were also prepared in the industry divisions a large number of statistical reports and special studies for other Government agencies, including the Department of State, Economic Cooperation Administration, Munitions Board, and the National Security Resources Board. These dealt with European recovery, mobilization planning, stockpiling, and other key programs.

Early in the year, when rising unemployment was a matter of concern, special studies and field trips were undertaken by the divisional staffs, in

connection with the President's program for the relief of areas of significant unemployment. These studies and trips laid the foundation for the greatly expanded program of Government procurement information, reported on below in connection with activities of the Small Business Division.

Assistance was extended to the Economic Cooperation Administration in keeping foreign producers and distributors interested in appraising potentials of United States markets. Among the many additional activities of the industry divisions note should be made of the preparation of more than 3,000 studies for guidance of commodity specialists who were to attend the International Conference on Tariffs and Trade to be held at Torquay, England, later in the calendar year and substantial contributions to the Secretary's report to the President on Issues Involved in a Unified and Coordinated Federal Program for Transportation.

MARKETING DIVISION

The continuing basic program in marketing included the collection and analysis of data on distribution costs, price spreads, and margin, expense, and profit ratios; the analysis and presentation of statistical data for use in market selection and measurement and in sales promotion; and the study of effective methods of retail and wholesale operation.

In cooperation with the Economic Cooperation Administration a series of tours of the United States was arranged and directed for members of distribution missions from countries participating in the European Recovery program.

Research by the staff of the Division was reflected in a series of published reports including the following titles: "Selling in the United States Market," "County Business Patterns," "Market Research Sources, 1950," "Dry Goods Wholesalers' Operations," "Government Information on Retailing," and "New Product Opportunities."

The Division maintained its cooperative relationship with the distribution industry through the National Distribution Council, the Retail Trade Advisory Committee, and the Wholesale Trade Advisory Committee.

SMALL BUSINESS DIVISION

GOVERNMENT PROCUREMENT. The Bureau's program for small business was strengthened during the year under congressional recognition of the need for such improvement and appropriation of additional funds. A major area of expansion was that of the procurement information program. This program received new impetus in the summer of 1949 in connection with the President's concern to make sure that businessmen in areas affected by significant unemployment were kept fully aware of the possibility of using their productive capacity in meeting Government procurement needs. Although concern was felt for businesses of every size, it was, of course, the smaller ones which stood in greatest need of specialized procurement information. As a result of experience in the field and negotiations among

the agencies concerned, formal arrangements were made on March 15, 1950, between the Secretary of Commerce and both the Secretary of Defense and the Administrator of General Services, under which information on bidding for procurement contracts was to be disseminated to the business community through outlets established by the Department of Commerce.

An earlier element in the program of procurement information, the loose-leaf Government Proceurement Manual, was maintained during the year and regularly serviced through the mailing of revised pages to the field offices and the cooperating offices with which copies had been deposited. The manual, which contains fully detailed information on the organization and procedure peculiar to each of the Federal procurement agencies, proved to be a valuable adjunct to the synopsis information on bids, enabling businessmen to proceed in full knowledge of what was required of them and how they could most advantageously seek procurement contracts.

Finance and Taxation. The field of small business finance and tax problems was given increased attention during the year, particularly in connection with the proposed Small Business Act of 1950, in which were incorporated numerous proposals that had been advanced by Members of Congress, as well as basic recommendations in this field by the President. In the preparation of the bill that was introduced under this title, the Division provided departmental representation on interagency working committees.

Several publications in the field of finance and taxation were revised to reflect current conditions and additional publications in this field of value to small business were prepared.

Industry Size Characteristics. An important phase of the small business program was a research project designed to establish a description of the business population in terms of the size characteristics of the various recognized industries. Tentative standards for classifying firms by size were developed for each of 452 manufacturing industries. The principal application of such standards is in the implementation of Government policies for the aid of small business, in which a concrete and well-grounded definition of what constitutes small business in any given industry is essential.

Management Aids. In the field of management, the program continued of issuing business aids and related publications on the latest and most effective techniques of management suitable for adoption by smaller firms. At the close of the fiscal year the Government Printing Office reported the sale of over 1,150,000 copies of 44 titles of the "Establishing and Operating" series of booklets on as many different types of business. A considerable number of 1-page Small Business Aids, each covering a single specific subject, were published and found very wide use. Interested trade associations, business editors, and large manufacturers and distributors cooperated extensively with the Department by furnishing to their respective members,

dealers, customers, and readers reproductions of these Business Aids and related materials at no expense to the Government.

UNIVERSITY EXTENSION. During the year the University Extension Service of the Division completed a new edition of Suggested Research Problems in Business and Economics for the use of universities in developing research projects of value to business. Reports were received on more than 1,500 university research studies, which will be issued for the use of businessmen as the Compilation of University Business-Economic Research. A survey was made during the year which disclosed that 248 schools of college and university grade were offering special small business courses. Some 40 such institutions were assisted during the year in establishing such courses and the Division has in draft form a course outline and bibliography on small business, which is intended to aid in improving the small business curriculum in colleges and universities.

AREA DEVELOPMENT DIVISION

During fiscal 1950 the Area Development Division enlarged its service program in area economic development, providing technical assistance within the Department and to agencies of Federal, State, and local governments, manufacturers, industrial departments of utilities and railroads, chambers of commerce, and other development organizations.

The Division provided representation on the joint committee of the Departments of Commerce and Labor, established at the request of the White House, to coordinate Federal activities directed toward improvement of economic conditions in areas of acute unemployment.

Members of the staff represented the Department in the work of several committees and subcommittees of the President's Water Resources Policy Commission and continued to serve as a liaison center for the Department's representatives on the interagency river basin committees in the Missouri and Columbia Valleys to coordinate programs for the development of water resources for power, navigation, flood control, and other purposes.

In May, the Division released its first major publication in the field of regional economic development, Economic Development Atlas—Recent Changes in Regions and States. Through schematic maps, tables, and brief narratives, the atlas depicted major shifts in population, manufacturing, and income and in the interrelationships among these economic items.

Technical inquiries from business firms, agencies, and individuals on economic development and matters of plant location were serviced in Washington and in the field and specialized consultation was provided, upon request, to a number of State and local development organizations, chambers of commerce, and research organizations.

The third annual seminar for planning and development agencies was sponsored by the Division and held in Washington. Over 50 representatives from development agencies, banks, utilities, and chambers of commerce

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in some 30 States participated in discussions concerning industrial research, foreign trade, public works, river basin development, housing, and related statistics.

TRADE ASSOCIATION DIVISION

The Trade Association Division continued its 35-year history of serving as the central source in the Federal Government for information about national and local trade associations and other public interest groups. National Associations of the United States, a 700-page directory, was published in February 1950, of which, by the end of June, 7,000 copies were sold by the Superintendent of Documents.

Studies of trade association operations were completed and a number of reports issued during the year outlining typical association functions and services useful to their members and to the Government.

The Division provided departmental representation on several committees to coordinate business and Government activities sponsored by the American Trade Association executives, Chamber of Commerce of the United States, National Industrial Council, etc., including one set up by the Department of Defense to arrange closer ties with organized business during the defense expansion program.

Office of International Trade

The activities of the Office of International Trade in the fiscal year 1950 were necessarily responsive to the changing foreign economic situation and to shifting requirements of foreign economic policy. Over the course of the year the excess of United States merchandise exports over imports narrowed significantly. By the last quarter the "dollar gap" was running at a rate about one-third that in the last quarter of fiscal 1949. This decline resulted from further restriction in foreign buying in the United States, which was due in large measure to the widespread devaluation of currencies in September 1949. Dollar deficits declined almost universally; an increasing number of countries, notably in South America, the Far East, and Africa, became net dollar earners on their trade account with the United States. The general improvement in the foreign gold and dollar reserve position gave some promise of the gradual relaxation of import license and exchange controls, of the ultimate restoration of multilateral trade and currency convertibility, and of western Europe's capacity by the end of 1952 to sustain production and living standards without extraordinary foreign assistance. The year seemed thus to mark a turning point for international trade. However, with the outbreak of hostilities in Korea at the end of the year, the world trade picture was expected to alter greatly.

ANALYTICAL AND INFORMATIONAL SERVICES

OIT, through its analytical and informational services, kept the public apprised of changes in the international economic and trade situation.

These services were made available through publications, correspondence, individual contacts, and group meetings, as well as information disseminated through the Department's Field Service. Among the publications issued were: Foreign Commerce Weekly; approximately 150 reports in the International Reference Service, including, for individual countries, economic reviews, summaries of basic economic information, and issues dealing with establishing businesses abroad, living and office operating costs, and preparing shipments; several hundred reports in the World Trade in Commodities series; special publications such as Shipment of Samples and Advertising Matter Abroad, part II (Eastern Hemisphere); and circulars relating to such matters as trading with Germany and with Japan, the credit outlook in certain countries, the procedure in sending gift packages abroad, and employment possibilities in foreign countries. The first postwar edition of the Foreign Commerce Yearbook was issued and a second edition was under way; this publication gives detailed trade statistics and related economic data on about 75 countries. And as usual, a number of articles were prepared for publication in newspapers and journals, both domestic and foreign.

Much of the information furnished through the regular services related specifically to such matters as the market situation abroad with respect to the demand for goods; to foreign import duties, taxes, and import and exchange controls, as well as to foreign export duties and controls affecting imports needed by the United States; to transportation and insurance problems in foreign countries; and to foreign industrial developments and United States investment abroad. Information on actual trade opportunities of interest to American exporters and importers was published and listings of individual traders abroad were supplied, together with related credit and other pertinent information.

Illustrative of the many developments especially attracting American business interest, and the subject of many inquiries, were: The new trade agreement between the United Kingdom and Argentina; the growing tendency in certain countries toward the use of barter agreements with other countries; Brazil's new regulations strictly curbing imports, and a variety of other changes affecting United States foreign trade and the international balance of payments; sterling-area import licensing and quota restrictions subsequent to currency devaluation; the status in various countries of payments against the backlog of unpaid commercial commitments; the pronounced trend toward protectionism in many countries; and the commercial situation in China resulting from the civil war. In response to the latter interest a special weekly news letter was issued pertaining to China to give timely news necessary for the protection of American commercial interests there.

The year was characterized by an increasing number of requests from United States importers seeking new sources of supply abroad, particularly

from Austria, Germany, and southeast Asia, and greater interest on the part of United States manufacturers in arranging for the manufacture of products abroad under license. Requiring clarification on behalf of individual traders were problems arising incident to ECA procedures and to developments in ECA policy and regulations. In addition, the "dollar export drive," which gained momentum during the year in most of the western European countries, called for various types of assistance from OIT, both to explain its nature and objectives to the United States trade and to give advice and assistance to several of the foreign governments concerning the problems they encountered in their efforts to increase their exports to this country. Announcement of the functioning of the Joint United States-Argentine Committee for Commercial Studies occasioned many inquiries concerning its purpose and progress and the prospects of improving trade relations between the two countries.

FOREIGN SERVICE LIAISON

OIT is dependent in large part, as the bases for its analytical and informational services, on reports received from Foreign Service officers stationed throughout the world. Together with the Foreign Service and Government agencies in Washington, OIT effected a general improvement in operating relationships, despite the complexity and increased number of liaison problems resulting from major governmental reorganizations. The respective functions of the State and Commerce Departments were clarified, with increased recognition of OIT's responsibilities. Improvements were made in the exchange of data needed for economic policy planning and in the operation of a smooth-functioning system to obtain commercial and economic reports from abroad. The effectiveness of the system has been enhanced by OIT's increased participation in the evaluation and appraisal of the work of the Foreign Service officers and employees and through the expansion of the Commerce training program for Foreign Service personnel.

TRAVEL PROMOTION AND TRADE FAIRS

OIT continued to promote travel to Europe and other areas as a means of reducing the dollar gap. A delegation was sent for that purpose to South America to meet with government officials there. Concrete results achieved by the ECA-Commerce travel program include progressive relaxation of restrictions and controls in respect to travel funds by European nations and the elimination of visa requirements in ERP countries (except Trieste, Iceland, and Turkey) and in Bolivia, Colombia, and Uruguay.

OIT assisted the management of the First United States International Trade Fair (held in Chicago in August 1950 and participated in by 47 nations, including the United States) through advice and guidance with respect to techniques involved in planning, organizing, and operating the fair. OIT also counseled and assisted other cities that are planning international trade fairs during the coming year.

SPECIAL PROGRAMS AND CONFERENCES

OIT sought to insure that the views and needs of business were considered in the formulation of our economic and financial policies and programs.

The Office gave particular consideration to the Point Four program, in recognition of the importance of, and this Government's interest in, the economic improvement of underdeveloped countries. It cooperated with interdepartmental efforts in developing recommendations for legislation of this program. Advice was also rendered to a number of foreign governments regarding their general economic development plans, and specific suggestions were made for the improvement of individual projects. Similar assistance was given to United States business firms that required information in connection with foreign investment proposals.

OIT continued active participation in the work of the Interdepartmental Trade Agreements Committee and the Committee for Reciprocity Information. Staff members went to Annecy, France, in connection with reciprocal trade agreement negotiations. The preparatory work for the third round of tariff negotiations, to open in September 1950 at Torquay, England, involved a large segment of the staff for nearly 6 months. OIT representatives assisted at the fourth session held in Geneva, of the Contracting Parties to the General Agreement on Tariffs and Trade; another group assisted in reviewing the draft of the proposed new German tariff schedule. OIT areas and commercial policy specialists were consulted in connection with negotiation of several Treaties of Friendship, Commerce and Navigation, and meetings were held with representative United States businessmen to obtain advice on crucial commercial sections of these treaties.

Much work centered on preparing data for the tripartite financial and trade discussions between the United Kingdom, Canada, and the United States. Study continued on the problem of United Kingdom and other sterling-area trade, as part of an over-all analysis of the current dollar drain on the area, and the controls imposed to prevent that drain. OIT, in cooperation with interested agencies, studied the movement, through third countries, of United States imports from the sterling area. OIT continued to operate the British Token Import Program, which provides for imports into the United Kingdom of American patented products up to 20 percent of prewar.

In view of the importance of taking into account the business point of view in the making of United States economic policy in the United Nations, OIT gave special attention to UN conferences and cooperated with the Department of State in the work of those conferences. OIT worked closely with the Department of State in formulating and promoting the United States position on issues of international economic policy in the Economic and Social Council of the United Nations and in its various commissions. Members of the staff served as advisers to the United States delegations, to the tenth and eleventh sessions of the Economic Council, to

the Economic and Employment Commission, to the third session of the Economic Commission for Latin America, and to the meeting of the Transport and Communications Commission. Among the issues which were discussed at UN meetings during the year, and on which important decisions were taken, were international measures for maintaining full employment; methods of financing the economic development of underdeveloped countries, the organization and administration of an expanded program of technical assistance, industrialization and trade promotion in Latin America; and various problems of maritime shipping and inland transport bearing on trade relations.

OIT cooperated with the Treasury Department in the preparation of a proposed customs simplification bill, particularly in getting advice from the business community and pointing up corollary problems in the customs procedure of other countries.

In accordance with SCAP regulations concerning entry of foreign nationals into Japan, OIT continued to act as sponsor for American commercial entrants. More than 1,000 applications for business travel to Japan were processed and the required permission to enter obtained. Members of OIT participated in an interdepartmental Advisory Mission which went to Japan at the request of SCAP to review Japanese trade practices; recommendations of the Commerce group for transferring Japanese foreign trade to private channels became effective during the year.

Duties connected with the administration of the China Trade Act continued to be heavy. The relevant legal and financial work pertaining to nearly 100 annual reports and other documents affecting China Trade Act corporations was completed.

An OIT staff member attended the conference of United States Economic Counselors, held in Tokyo, to discuss the integration of Far East economies in relation to the production of food and the development of intraregional trade and to interpret to our Far Eastern representatives the economic policies of the United States Government. OIT was represented at the Regional Economic and Consular Conferences held by the State Department in Paris, Cairo, and Lourenco Marques for the purpose of considering the economic problems peculiar to the respective regions. The ECA-liaison function of OIT demands increasing attention; staff members attended meetings of various ECA Missions in Europe, held to promote Europe's trade with the United States, to examine the difficulties in transacting that trade, and to assist the countries to overcome the difficulties.

OIT was responsible for the administration of export control until the transfer of responsibility, late in the fiscal year, to the Office of Industry and Commerce; the Office continued to furnish statistics on the flow of goods under control and, through its geographical divisions, assisted in determining the need for civilian consumption of controlled items in foreign countries.

The Office of International Trade continued to carry out its responsibilities in the administration of the Foreign-Trade Zones Act. The outstanding new development was the enactment by the Eighty-first Congress of an amendment to the original law to allow manufacturing and exhibiting activities to be conducted in the zones. This is expected to make these zones (located at the Ports of New York, New Orleans, San Francisco, Los Angeles, and Seattle and, after September 1950, at the San Antonio (Tex.) Municipal Airport) more effective in the promotion of foreign trade.

Office of Field Service

The Field Service, operating through 42 field offices in important business centers throughout the United States, acts as the representative of the other offices of the Bureau of Foreign and Domestic Commerce and the Bureau of the Census in making the services and facilities of these bureaus available locally to the commercial, financial, and industrial commuity.

In the field of foreign commerce the offices were called upon during this fiscal year to handle the greatest volume of inquiries since the service was inaugurated in 1912. Several factors contributed to his heavy demand—namely, the sustained interest in participating in export business made possible by European Cooperation Administration allotments under the Marshall Plan, the impetus given our import trade by the search for new overseas sources on items in short supply in the United States, and changes in our export control regulations which resulted in further decontrol, with the principal emphasis on the screening and limitation of export shipments for reasons of foreign policy and national security.

In the domestic field, the business public made greater use than ever before of the statistical data compiled by the Office of Business Economics, the Office of Industry and Commerce, and the Bureau of the Census. Important gains were made in supplying up-to-date statistical data of particular value in the field of marketing and distribution.

One of the outstanding developments of the year was the release through the field offices of information on Government procurement under the interdepartmental agreement described above under Small Business activities. Under this arrangement each major purchasing office of the Department of Defense and the General Services Administration supplied a brief synopsis of requirements for which bids were requested, describing the item, indicating quantities, and announcing the date of opening of bids. This information was provided to the Department of Commerce on a daily basis for some 80 purchase offices and was consolidated and distributed daily by the Field Service to an increasing number of outlets cooperating with the Department.

Using the Department's own field offices, chambers of commerce, trade associations, State agencies and other cooperating public service bodies, the Field Service published and distributed consolidated synopses of approved invitations to bid issued by these agencies. Initially numbering

only 150, by the close of the fiscal year these cooperative outlets totaled more than 2,200, with indications that the number would reach 3,500 by early fall.

INLAND WATERWAYS CORPORATION

The Inland Waterways Corporation was created for the purpose of carrying on the operations of the Government-owned inland waterways system until such time as the system can be transferred to private operation to the best advantage of the Government.

The Corporation operates as a common carrier in the same manner and to the same extent as if its facilities were privately owned and operated. In accordance with the bylaws of the Corporation its fiscal year ends on June 30 and its detailed annual reports are prepared on that basis.

The accounts of the Corporation show a net loss for the fiscal year ending June 30, 1950 of 26 percent less than the loss for the previous year. The loss for fiscal 1949, however, was inflated by the inclusion in that year of liability for annual leave applicable to prior years. The result of actual operations for fiscal 1950 was therefore less favorable than in the previous year. Expenses of operation for fiscal 1950 decreased approximately 1.5 percent, but revenue decreased approximately 3.5 percent.

The seriously deteriorated condition of the Corporation's barges resulted in withdrawal by underwriters of any cargo insurance protection on 10 percent of the barges and partial withdrawal on an additional 40 percent. Thus the available cargo capacity was seriously decreased. In spite of this handicap, because of greater operating efficiency, total tonnage, including that towed for others, decreased only approximately 7 percent. This decrease was due primarily to strikes and short work weeks in the coal industry and the virtual disappearance of petroleum tonnage. Operating efficiency was somewhat reduced by high water and very heavy fog during parts of the first 4 months of calendar 1950.

The experimental integrated tow delivered in the late spring of 1948 continued to turn in an outstanding performance in speed, ton-miles, and revenue production. Its full potential efficiency has not been realized because of an insufficient number of integrated barges to permit operation at all times with a full tow of these barges. Twelve additional barges were ordered, of which two were delivered in fiscal 1950. The delivery of the remaining 10 during the early autumn of 1950 will considerably improve the revenue production of this unit.

In January 1950 a group of private barge line operators made a proposal to lease and operate the facilities of the Corporation. This proposal was rejected because it provided no assurance of the rehabilitation so vital to the financial success of the operation and because it proposed to leave in the hands of the Government the many terminals formerly operated by the

Corporation. Other groups have also indicated an interest in acquiring the property.

On October 31, 1949, a subcommittee of the Senate Interstate and Foreign Commerce Committee reported out Senate Bill 211 recommending an increase of 7 million dollars in the capital of the Corporation and certain revisions in the statutes pertaining to the ultimate disposition of the Corporation. Final action was not taken by the Senate or House of Representatives before adjournment in September.

The physical condition of the Corporation's barges becomes a more critical emergency with each passing month and unless very substantial replacements of barge tonnage are made during the coming fiscal year, it is expected that traffic will have to be curtailed. Unless vessel efficiency is greatly improved through construction of modern and efficient towboats, freight will continue to be handled, as in recent years, at a loss. Maintenance of the Corporation's existing towboat fleet is being carried out for the continuation of such an operation.

PATENT OFFICE

PATENT EXAMINING OPERATION

Condition of Work. The Patent examining corps, in support of Office policy to accelerate the disposal of pending applications, continued to make substantial gains in its productive rate. Without change in the number of examiners, the corps accomplished increases of 18 percent in the total number of application disposals, 23 percent in patent issuances, and 24 percent in the net excess of disposals over new applications received. Factors contributing to this response of the examining corps include, in part, improvement in the physical factors of the working environment—particularly the alleviation of acute crowding of examiners, made possible by the availability of 15,000 square feet of additional space to the Patent Office; incentive offered by operation of the promotion program which, in addition preserved the tenure of experienced examiners; continued benefit of the in-service training program; more effective supervision; improved esprit de corps; and, changes in practice which facilitated work.

Patent applications received during the year numbered 76,602, including design and reissue applications, while operations of the examining corps for this period resulted in the grant of 43,509 patents and the disposal of 88,852 pending applications. At the end of the year 227,141 patent applications were on hand in the Office of which 124,823 were awaiting action by the examiners. Reductions in backlog for these categories were 13,138 and 15,888 respectively.

Particular emphasis was given to reducing pendency of applications awaiting action by the examiner, with special effort applied in those examining

divisions over a year behind in their work. In giving effect to this policy, the dates of oldest pending actions were brought steadily and firmly down from a maximum of 33 months in fiscal year 1949 to 18 months at the end of this year. On June 30, 1950, almost half of the divisions were within 12 months of date in their oldest work, whereas a year ago only 16 percent of them were in that condition. Measures taken in furtherance of this program, which embraced the tribunals of the Patent Office as well as the examining operations, included the appointment of six temporary examiners-in-chief to serve with the Board of Appeals under authority of Public Law 452, Eighty-first Congress, which enabled the Board to operate in three panels instead of two and to conduct a fuller daily schedule of hearings; the provision of additional personnel to serve as trade-mark interference examiners to expedite the disposal of applications involved in interference, opposition, and cancellation proceedings; and the establishment of a Commissioner's Examiners Division, an organization of selected examiners constituting a special working force which operated throughout the examining organization, at the direction of the Commissioner, to assist in disposing of dockets of older pending cases.

Patent Classification. Original plans to intensify and broaden reclassification activity were not initiated, due to personnel limitations resulting from budget reductions. Progress continued to be made along this line, however, with existing staff, which formed 313 new subclasses, involving the original classification of 7,339 patents and 7,733 patent cross-references, in 32 existing classes; transferred the original classification of 5,095 patents and 494 cross-reference classifications; made and placed 7,234 new cross-reference classifications and canceled 450 cross-references; and, in connection with the foregoing, abolished 74 subclasses in 20 classes comprising 54,590 original and 2,864 cross-reference classifications. Reclassification projects in process with the examiners at the end of the year involved 24 classes and included, as notable examples of this work, the establishment of a new classification for expressing presses, for valve structure and valve actuation, for paper making and fiber liberation, and for coating apparatus. Emphasis in this work continued to be placed on breaking up the more active of the over-sized subclasses and collecting art at present scattered through a number of subclasses to expedite search. Projects underway in the stage of clerical processing involve establishing 731 new subclasses in 20 classes and abolishing 236 subclasses in 16 classes, including abolition of the entire class 176.

The classification of patents issued during the year was reviewed, with 4,334 changes made in the original classification and a total of 52,037 cross-reference classifications made and placed. Similar review with reference to design patents established 4,826 original classifications and 1,735 cross-references.

TRADE-MARK OPERATION

Continued progress was made during the year toward establishing examining operations on a current basis. A decrease of 17 percent in the backlog of pending applications was realized along with a reduction in the pendency of applications. By the end of the year new applications for registration were under examination within 10 months from date of receipt, 5 months sooner than on June 30, 1949, while applications for renewal and republication were being considered within 2 months. Along with these favorable developments, activity by the examiners accomplished the registration of a record high number of trade-marks and a volume of publications only slightly under the record established in the preceding year. There were 16,378 marks registered during the fiscal year of which 15,320 were registered under the act of 1946, 13,593 of them on the Principal Register.

Despite the large volume of registrations and publications, there was a sharp decline in the number of oppositions and petitions for cancellation filed in the Office. Fewer new applications, also, were received than in the previous year.

Several changes of administrative significance were made through amendments to the rules, effective November 1, 1949. The single class, "Services," was enlarged to comprise eight classes of services and refinements were made in several classes of goods. An index of pending applications, giving the identity of the applicant, a description of the mark and the goods or services to which applied, and the serial number, was established for public use in the search room.

Increasing guidance concerning many problems of administration under the Trade-Mark Act of 1946 was afforded by the growing number of Commissioner's decisions dealing with questions of registrability and other provisions of the law. Final determination of policy as to registrability under the new act must, however, await adjudication of these questions by the courts.

ACCOMPLISHMENTS AND GENERAL PROGRESS

Publication of the Manual of Patent Examining Procedure in November 1949 provided personnel of the Patent Office as well as the public, with an official reference work on practice and procedure in the Office as it relates to the duties and operations of patent examiners. Among other Patent Office publications made available during the year were a second edition of Rules of Practice in Trade-Mark Cases with Forms and Statutes, which incorporated amendments to the Trade-Mark Rules affected since July 5, 1947; a pamphlet entitled "General Information Concerning Trade-Mark," designed for use in answering frequent inquiries concerning trade-marks; a second annual edition of the Roster of Attorneys and Agents Registered to Practice Before the United States Patent Office; a reprint of the Rules of Practice of the U. S. Patent Office in Patent Cases, including

amendments to the rules of November 1, 1949, and February 24, 1950; a brochure concerning plastic products and manufacturing processes; two booklets containing extracts from the Register of Patents Available for Licensing or Sale; and a variety of materials relating to patent classification including 258 replacement pages for the Manual of Classification and 146 classification bulletins.

The project undertaken in June 1948 to systematically perfect the arrangement and condition of patent copies comprising the collection maintained for public use in the search room was completed. This job entailed a complete inventory of patent copies filed in over 44,000 subclasses of the 306 classes comprising the original and cross-reference classification of about 2½ million patents. As this was the first complete check of the search room collection in nearly 25 years, voluminous changes were necessary.

Abstracts of applications published in the Official Gazette during the year, in accordance with the practice established by Commissioner's Notice of January 25, 1949, numbered 490, with the first of such items appearing in the issue of July 5, 1949. Requests for the disposal of applications by this process failed to materialize to the extent expected.

The Committee on Enrollment conducted two examinations which resulted in the registration of 171 additional attorneys and agents to practice before the United States Patent Office.

A special-handling and air-mail delivery service was inaugurated in December 1949 to meet the needs of individuals who on occasion have to obtain printed copies of patents much faster than they can be obtained on the normal service basis. This speedier service operates through special handling of orders in the Patent Office and the use of air mail, for which the client pays an additional fee of 10 cents. While improving service on orders for copies of patents and trade-marks, the volume of sales and distribution handled by the Patent Copy Sales Branch of the Office rose to a record high of 7,204,672 copies.

Over 10,000 additional patents were made available by industry and individuals for placement on the Register of Patents Available for Licensing or Sale, bringing listings on the Register to over 50,000 patents by the end of the year. An increasingly large number of public referrals to the Register indicated the greater fulfilment of its function as a medium for bringing together people with mutual and reciprocal business interests.

Procedures were instituted to provide the systematic incorporation of nonpatent literature in the official classification and to realize greater benefits from classification studies made in examining divisions. Research continued, with good progress made in developing a machine method of searching patents.

LEGISLATION

Legislation of special importance to the Patent Office enacted during the second session of the Eighty-first Congress included the following:

Public Law 452 relating to the Board of Appeals; Public Law 507, the Science Foundation bill; Public Law 549, authorizing the Office to supply back copies of patents to libraries at the subscription price; Public Law 694, concerning cancellation of certain royalty-free licenses granted to the Government; Public Law 710, eliminating the requirement to print declarations in certificates of trade-mark registrations; and other laws, both public and private, extending the terms of patents.

The Patent Office was called on for assistance and cooperated closely with the Committee on the Judiciary of the House of Representatives in connection with the committee's proposed general revision and codification of the patent laws.

PERSONNEL

On June 30, 1950, the personnel strength of the Patent Office numbered 1,960 employees, 50 less than the peak force of the year, while average employment for the year was 22 man-years under the level anticipated in the budget for 1950. Inability to realize the full employment plan resulted from uncertainties with regard to the supplemental appropriation, which provided funds to pay salary increases under the Classification Act of 1949, as well as to defray increased printing costs, and the appropriation for fiscal year 1951.

BUREAU OF PUBLIC ROADS

The Bureau of Public Roads became a part of the Department of Commerce on August 20, 1949, when the President's Reorganization Plan No. 7 became effective. It was created as the Office of Road Inquiry in 1893 in the Department of Agriculture. On July 1, 1939, as the Public Roads Administration, it became a part of the Federal Works Agency. That agency was abolished on July 1, 1949, and the road organization was included in the newly created General Services Administration until its transfer, as a bureau, to the Department of Commerce.

The bureau has administered Federal funds to aid the States in highway improvement since initiation of the policy in 1916. It also supervises construction of highways in national forests and national parks, and its services are available to all Federal agencies in highway matters. As a guide in its work, which includes the making of recommendations as to national highway policy, it conducts extensive research in methods of road construction and economics of highway transportation. The economic studies have many phases, such as growth of highway traffic, condition of improvement of highway systems, sources of highway funds and objects of expenditure, and price trends in highway construction. In furtherance of the foreign policy of the United States, the Bureau has responded frequently to calls from other countries for assistance in organizing highway departments and carrying on work according to modern methods.

A new record high was reached during the fiscal year 1950 in the volume of all classes of Federal-aid highway projects brought to completion. Improvements completed had a total length of 21,030 miles. This was almost identical with the mileage completed during the prior year and was exceeded slightly by mileages completed during the fiscal years 1934 and 1937, but the greater emphasis on relief of traffic congestion in urban areas, coupled with increasing attention to development of the interstate system, has resulted in the construction of a higher percentage of multiple-lane highways and bridges than in previous years. Thus the total traffic service provided by the more recently completed improvements is unquestionably of a higher order than ever before achieved.

Federal-aid funds authorized to assist the States in highway improvement during the fiscal year amounted to 450 million dollars with 202½ million dollars assigned to the Federal-aid highway system, 135 million dollars to the Federal-aid secondary system, and 112½ million dollars for the Federal-aid highway system in urban areas. The program is a continuing one and funds remain available for 2 years after the year for which authorized. Expenditures in any fiscal year need not necessarily be identical with the authorization. However, cost of work put in place amounted to 97 percent of funds authorized for the year.

The systems upon which funds were expended were the Federal-aid highway system, which includes 219,776 miles outside of cities and 14,710 miles in urban areas, and the Federal-aid secondary system of 406,267 miles of farm-to-market roads. Improvements were completed on these highways as follows: 5,914 miles of rural primary highways and 1,163 bridges; 13,515 miles of secondary or farm-to-market roads and 1,631 bridges; and 779 miles of highways and 353 bridges in urban areas. Accomplishments in the elimination of hazards at railroad-highway grade crossings included the elimination of 154 crossings, reconstruction of 48 inadequate grade separation structures, and the protection of 414 crossings by flashing light signals or other appropriate safety devices.

All projects undertaken were proposed by the respective State highway departments, as required by law, and the States paid somewhat more than half of the cost, except in Western States with large areas of public lands. In such States Federal participation in excess of 50 percent of the cost is authorized. The amount of increase above 50 percent is based on the percentage of the area in public lands.

The work done ranged from low-cost improvement of farm-to-market roads with local materials to city expressways incorporating the most modern features and designed for safe and uninterrupted movement of great volumes of traffic. Significant features of the year's work were the large mileage of secondary roads placed in service, the marked increase in the number of cities making an actual beginning on solution of congestion problems by construction of expressways, and the extent to which the States

undertook modernization of main intercity routes by widening and straightening and frequently by construction of four-lane divided highways.

The most important routes of the Federal-aid highway system have been included in the National System of Interstate Highways. This system is limited by law to 40,000 miles and it is to be improved to the highest modern standards. Of the mileage previously indicated as completed during the year, 979 miles were on this system. Many of the projects were of relatively short length but involved very costly work such as carrying main routes over several railroad tracks.

Work under construction or approved for construction at the end of the year involved improvement of nearly 23,000 miles of highways and streets.

In addition to administering Federal aid to the States the bureau directly supervised highway construction in Federal areas. Work of this class brought to completion included 516 miles of national forest highways, 255 miles of national park highways and national parkways, and 2 miles in public lands.

In addition to these principal activities the bureau supervised highway construction for the Atomic Energy Commission and various branches of the Department of the Interior. Work on the portion of the Inter-American Highway from the Mexico-Guatemala border to Panama with funds provided partly by the United States progressed at a reduced rate because of the near exhaustion of funds. Some construction was done in Guatemala, Nicaragua, and Costa Rica.

Staffs of bureau engineers in the Philippine Islands and in Turkey gave active assistance to the governments of those countries in reorganizing their highway departments and in planning and constructing modern highway systems. The program in the Philippines involved the rehabilitation of 360 miles of war-damaged highways and 223 major bridges. The work in Turkey began in 1947. Supported partly by loans from the Economic Cooperation Administration, it has resulted in marked progress in the construction and maintenance of a 4,500-mile national highway system with modern machinery and methods. New routes are being opened to motor transport that will be of great benefit to the economy of Turkey.

Research in the fields of highway transport, finance, administration, and methods of road construction was continued. The results were widely applied by the States in carrying on their highway programs. Many States made extensive use of bureau material and methods in highway needs studies. These studies were conducted to establish desirable programs of highway improvement, determine the cost and method of financing, and provide for a fair distribution of the cost.

At the request of the Senate Committee on Public Works a report entitled "The Local Rural Road Problem" was presented to the committee in January. This report, based on extensive data collected from every State, showed the extent and usage of local roads, required improvement, and its

cost, and discussed local road finance and administration. The factual data were considered by Congress in formulating Federal highway legislation.

NATIONAL BUREAU OF STANDARDS

The National Bureau of Standards is the principal agency of the Federal Government for fundamental research in physics, mathematics, chemistry, and engineering. It has custody of the national standards of physical measurement, in terms of which all working standards in research laboratories and industry are calibrated, and carries on necessary research leading to improvement in such standards and measurement methods. In addition to its general responsibility for basic research, the Bureau undertakes specific research and development programs, develops improved methods for testing materials and equipment, determines physical constants and properties of materials, tests and calibrates standard measuring apparatus and reference standards, develops specifications for Federal purchasing, and serves the Government and the scientific institutions of the Nation in an advisory capacity on matters relating to the physical sciences.

The broad scope of the work carried on during the year may be classified under two general headings: (1) research and development and (2) service activities, which include the work on codes and specifications; commodity standards; testing, calibration, and standard samples; and cooperative and consulting services.

RESEARCH AND DEVELOPMENT

The research and development activities of the Bureau are primarily of two kinds. There are, first, the investigations that result from the Bureau's responsibility for fundamental measurements in the physical sciences, the development and maintenance of primary standards in science and engineering, and the testing and calibration of standard measuring apparatus and reference standards. A second phase of research and development at the Bureau consists of large-scale specific projects undertaken either under direct congressional authorization (e. g., the work in artificial radioactivity, building technology, and high polymers) or for other Government agencies (e. g., guided missiles, ordnance electronics, jet engines and fuels, electronic computing machines, and many of the projects relating to aeronautics). Selected examples of typical projects, representative of the over-all program, are described in the paragraphs which follow:

Electricity and Optics. Work in electricity and optics was largely concerned with improvement of standards and methods of physical measurement in these fields, the development of standards for issuance to industry, the design of new apparatus, and studies of the properties of materials. For example, the Bureau's development of standard equipment for testing a-c ammeters and voltmeters at frequencies ranging up to 20,000 cycles per sec-

ond was extended to cover currents up to 50 amperes and voltages to 400 volts with an accuracy approaching 0.01 percent. The use of large electrical powers at these frequencies is rapidly increasing in the fields of aeronautics and metallurgy.

Studies were carried out in connection with the formulation of specifications for flooring in Government hospitals which will eliminate the hazard involved in the ignition of explosive mixtures by static charges. A new system of equations for tracing skew rays through an optical system was developed, making possible the application of SEAC (National Bureau of Standards Eastern Automatic Computer) to the problem. An extremely sensitive method was worked out for testing the planeness of optical surfaces up to 10 or 12 inches in diameter. New permanent gloss standards were prepared and made available to the automotive, paper, plastics, ceramics, and other industries. The Union Colorimeter Scale, used to classify petroleum products by color, was revised to permit more accurate color measurement and thus to facilitate the purchase and sale of these products. The Bureau developed a method for the preservation of the Constitution and the Declaration of Independence by sealing in enclosures containing helium and investigated the lighting and viewing conditions at the Shrine in the Library of Congress.

METROLOGY. Measurement, instrumentation, and standardization problems, involving the basic concepts of length, mass, time, capacity, and density, constituted the greater part of the work in metrology. In addition, a broad program of research on the physical and chemical properties of dental materials was continued. The Bureau extended its mass standardization service to include weights for microbalances, which are becoming increasingly important for research in atomic energy, vitamin therapy, and microchemical techniques. An instrument was developed for indicating and recording the instantaneous frequency error in commercial power lines.

HEAT AND POWER. To learn more about the knocking characteristics of the individual components of automotive gasoline, an apparatus for investigating the burning mechanism of fuels was constructed. Work was also done on the effect of altitude on octane number measurement. The effect of gasoline additives on valve deposits was investigated, and studies of the service life of automobile tires were begun. The development of improved equipment and methods for testing aircraft accessories was continued, with particular emphasis on the components of the fuel and electrical systems.

In low-temperature physics, a new and wholly unexpected relationship was discovered between superconductivity—the loss of electrical resistance at very low temperatures—and the constitution of the atomic nucleus. A striking demonstration of the validity of the two-fluid theory of liquid helium II, a form of helium existing near absolute zero, was provided by the development of the Thermal Rayleigh Disk Method for investigating the wavelike propagation of heat in this substance. As a result of the increasing

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need for reliable temperature measurements at both very high and very low temperatures, considerable research was done to develop suitable instruments and methods of calibration.

Atomic and Radiation Physics. The results of basic research in atomic and nuclear physics are now being applied to an increasing extent in medicine, industry, and national defense. To meet the need for new techniques, instruments, standards of measurement, safety provisions for workers and consumers, standard samples for calibration purposes, and methods of testing and evalution in this rapidly expanding field, the Bureau is now engaged in a broad program of fundamental research and standardization in atomic and radiation physics.

During the year, the omegatron, a new instrument which is basically a miniature cyclotron, was developed for the measurement of atomic masses. A nonmagnetic radiofrequency mass spectrometer was developed in which a radiofrequency field replaces the usual magnetic field; this new type of mass spectrometer has been found ideally suited for use in rockets to determine the composition of the upper atmosphere. The program for the calibration and distribution of standard samples of artificially produced radioactive isotopes continued to grow as the demand for such standards increased in medicine, science, and industry. With the installation of a new 50-million-volt betatron, work in radiation physics was extended into the realm of extremely high energies. The initial phase of the program for the development of field X-ray equipment for the Army was completed, resulting in advances in design which promise to be of significance in the improvement of civilian X-ray apparatus.

Chemistry. A wide range of fundamental and applied research was carried on in physical, analytical, organic, and inorganic chemistry. A new type of instrument was developed for detecting gasoline vapors or other combustible gases in such spaces as airplane cabins or cargo holds. As the result of an extensive investigation in cooperation with other laboratories, standard methods for gas analysis were recommended to industry. A novel method was developed for measuring the adhesion of electroplated coatings. A rapid semimicro method of determining nitrogen in steel and a procedure for determining small amounts of magnesium in cast iron were developed. In the continuing program on the fundamental chemistry of sugars, further progress was made toward an understanding of their structure and the mechanisms of the reactions through which they take part in life processes. New color phase-contrast equipment was developed for microscopy, revealing ordinarily invisible detail of specimen structure as bright differences in color.

Mechanics. The mechanics of solids, liquids, and gases were the broad topics of research in this field. In scope, the work varied from long-range investigations of basic mechanical phenomena to short-range studies of the mechanical action of practical apparatus. To aid the Department of the

Navy in the flight-testing of aircraft, an instrument was designed and constructed which automatically indicates the force applied by the pilot to the control stick of an airplane. Studies were made of the changes caused by wind in water levels of shallow lakes and reservoirs. A fundamental investigation of drainage systems in buildings, sponsored by the Housing and Home Finance Agency, was continued. Work was begun on the extension of the Bureau's standards for the absolute calibration of microphones to frequencies of 100 kilocycles. Apparatus for determining the absorption coefficients of acoustic materials after installation was developed and applied to studies of the acoustic treatment in the Pentagon Building.

Organic and Fibrous Materials. New mathematical methods and experimental techniques were employed in an integrated approach to the study of materials of complex chemical structure such as rubber, plastics, textiles, leather, and paper. This program seeks to improve present knowledge of these materials, to develop new materials of this type, and to provide for their practical utilization. Thus, in an investigation sponsored jointly by the Office of Naval Research and the United States Army Quartermaster Corps, it was shown that the silicone rubbers, developed originally for high-temperature applications, have better potentialities for use at extremely low temperatures than any synthetic or natural rubber studied thus far. Further advances in the making of resin-bonded papers at the Bureau indicated that vast quantities of hardwoods may now for the first time be effectively utilized in the manufacture of offset papers. The Schiefer Abrasion Machine, developed for studying the abrasion resistance of textiles, was found well suited to determination of the abrasion resistance of yarns without the expense of weaving or knitting them into fabrics and without the introduction of effects due to changes caused by weaving and knitting. A new and more rapid method was developed for measuring the permeability of leather to water vapor, an important factor in determining the comfort of shoes. As part of a continuing program on the properties of laminated plastics for aircraft use, projects were completed dealing with the effect of simulated service conditions, fuel immersion, and extreme temperatures on these materials.

Metallurgy. The work in physical metallurgy involved the melting, working, and heat treatment of metals and alloys; determinations of their structure and properties; and studies of the effect of various factors on structure and properties; and studies of the effect of various factors on structure and behavior under normal and abnormal conditions of service. A new instrument was developed for measurement of X-ray diffraction patterns. In an effort to determine why metals fail in fatigue, it was shown that prestressing by static or dynamic procedures may improve materially the fatigue characteristics of aluminum alloys. The fatigue characteristics of steels used in aircraft were found to be appreciably affected when the steels are plated with chromium. In an investigation of printing plates used by the Bureau of Engraving and Printing, it was found that fatigue failures origi-

nated in the spot welds and metallic solder used to bond the electroformed printing sheet to the supporting metal plate.

MINERAL PRODUCTS. Research in the general field of nonmetallic mineral products was concerned with pottery and porcelain, the high-temperature oxides, glass, refractories, enameled metals, building stone, concreting materials, lime, and gypsum. The efficient application of these products in commerce, industry, and national defense requires an understanding of their chemical and physical properties. During the year, the Bureau investigated the chemical constitution and phase equilibrium relationships of the refractory oxides and the viscosity, density, and other physical properties of the molten optical glasses. Study of the corrosion and weathering of glass and of building stone was continued. The properties of graphite at elevated temperatures were studied as background information for the proper utilization of materials in atomic energy installations. Work on the growing of thallium bromide-iodide crystals for transmission of infrared light was practically completed. A better understanding was obtained of the chemical reactions that take place in the manufacture, setting, and hardening of portland cement. Important technical improvements were made in ceramic dielectrics for capacitors, high-temperature ceramics for jet and rocket propulsion, large glass elements of high optical quality for special lenses, and protective ceramic coatings for metals and alloys used at high temperatures.

BUILDING TECHNOLOGY. The Bureau continued to conduct laboratory research on technical problems relating to building construction and maintenance, codes, design, and standardization. Projects were active in structural engineering, fire protection, heating and air conditioning, and the chemical and physical properties of bituminous materials.

Study of the factors affecting the strength of reinforced concrete beams was continued, with special emphasis on resistance to diagonal tensile and bond stresses. A concrete was developed which is believed to be superior in durability, moisture resistance, and heat insulation value. Fire resistance classifications were determined for 12 floor, wall, and column constructions; and 136 panels were tested to evaluate the fire hazard properties of such finishing materials as acoustical tile and paints. Other activities in the field of fire protection included research and development on improved methods for determining self-heating, flash, and ignition temperatures; studies of the spontaneous heating of liquids, films, and plastics; and determination of the fire hazards of such emergency equipment as signal flares and smoke bombs.

In the field of heating and air conditioning, numerous measurements were made of the thermal conductance of materials and of heat transfer through wall, roof, and floor constructions. Heat exchangers for aircraft and baseboard heating elements for buildings were investigated. Improved apparatus was developed for measuring the water-vapor permeability of coatings for buildings, and studies were made of the durability of such materials.

Further progress was made toward the formulation of a code for safe walkway surfaces.

Applied Mathematics. Established in recognition of the need for a centralized national computational facility, the National Applied Mathematics Laboratories of the Bureau engage in basic mathematical research and in addition provide a service organization, particularly in the fields of engineering statistics and quality control, for the Armed Forces, other governmental agencies, and industry. Activities were concentrated largely in two programs: (1) numerical analysis and (2) mathematical statistics. In both programs, mathematical services involving applications of known theory and use of existing mathematical tools were furnished to Government and industry. In each case this was supplemented by theoretical research aimed at providing new methods and by the development of mathematical tools for use in the Bureau's own laboratories and in other agencies.

In numerical analysis, progress was made on the general problem of finding the eigenvalues, or characteristic values, of matrices and systems of differential equations. Considerable effort was also expended in seeking methods of solution for the partial differential equations of physics, which describe the phenomena of motion and change in the physical world. Twenty mathematical tables were completed or in progress during the year.

The program in statistical engineering was concerned with the application of modern statistical inference to complex engineering experiments and sampling problems and with the analysis of data arising in physical experiments. As in previous years, attention was given to the theory of samples consisting of small numbers of specimens such as are used in experimentation in the physical sciences and in engineering testing.

Electronics. New and highly specialized types of electronic circuits and components were developed to meet the particular requirements of industry and national defense. Much of the work was classified and involved the development of new ordnance devices for the National Military Establishment; a large part of the remainder consisted of projects in basic and applied electronics conducted primarily for other Government agencies. Seeking a means for very rapid starting and stopping of rotary motion, the Bureau developed a novel kind of friction clutch which utilizes the principles of the dynamic loud speaker. An improved rapid selector, in which the unexposed film can be advanced or stopped in approximately one-thousandth of a second, was developed for microfilm copying. A high-speed device which punches holes in any combination of 60 spaces on a standard IBM card at the rate of 600 cards per minute was developed for the Bureau of the Census. To meet the need for high-speed reversal of magnetic tapes in the memories of electronic digital computing machines, a method was developed for reversing a small electric motor in three- to four-thousandths of a second; this technique is expected to prove useful in other applications.

AUTOMATIC COMPUTING MACHINES. The completion and successful operation of SEAC—the National Bureau of Standards Eastern Automatic Computer—was achieved. SEAC is the fastest general-purpose, automatically sequenced electronic computer now in operation. It was developed and constructed, in a period of 20 months, by the staff of the National Bureau of Standards under the sponsorship of the Department of the Air Force to provide a high-speed computing service for Air Force Project SCOOP (Scientific Computation of Optimum Programs), a pioneering effort in the application of scientific principles to the large-scale problems of military management and administration. SEAC will also be available for solving other important problems of general scientific and engineering interest.

SEAC automatically performs all of the logical and arithmetical operations required to solve a particular problem when it is supplied with coded instructions and numerical data. Its high speed permits the use of many simple steps that can be combined into a complex and powerful sequence for the solution of difficult problems. This makes it possible to solve important mathematical, computational, and statistical problems which would otherwise be impossible of solution in any reasonable period of time, or which would be prohibitive in cost if attempted by conventional methods.

At the close of the fiscal year, a second high-speed, general-purpose electronic computer was nearing completion at the Bureau's Institute for Numerical Analysis in Los Angeles. This machine will be known as SWAC—The National Bureau of Standards Western Automatic Computer. Sponsored by the Office of Air Research of the Air Force, it will be operated by the National Bureau of Standards to provide a fast and powerful computational tool for three large types of problems: (1) Problems of the Office of Air Research of the Air Force and aircraft problems originating with contractors of the Air Force (in particular, the aircraft industry of the west coast); (2) problems in engineering, physics, and mathematics originating in the laboratories of the Bureau and other Government agencies; and (3) problems in research in numerical analysis and those arising in connection with the development of the art of machine computation.

RADIO PROPAGATION. Comprehensive programs of basic and applied research were carried forward in an effort to learn more about the earth's upper atmosphere and its effects on the propagation of radio waves. Fourteen radio propagation field stations, extending over North and South America and the Pacific area, were operated by the Bureau either directly or in close association with other agencies. Data thus obtained provided basic material for scientific research and for the application of propagation data to radio-communication problems. Radio waves emitted by the sun and stars were studied because of their relation to radio propagation and also because they provide a new means for exploration of the universe. Publication of Basic Radio Propagation Predictions, a monthly series of charts

predicting 3 months in advance the best frequencies for long-distance radio communication throughout the world, was continued. Information on radio-propagation conditions was also disseminated by mail, telephone, and telegraph to the armed services, commercial organizations, research laboratories, and the general public. A program was begun during the year for the study of the propagation factors affecting the use of radio for aircraft navigational and traffic control, and an experimental field station was set up for this purpose at Cheyenne Mountain, Colo. Continuous broadcasts of standard frequency and time were continued over the Bureau's radio station WWV at Beltsville, Md., and over an experimental station, WWVH, at Maui, T. H. A new type of atomic clock or frequency standard utilizing atomic-beam techniques was in process of development; it is expected that this clock will have unprecedented accuracy, with a variation of not more than 1 second in 300 years.

SERVICE ACTIVITIES

CODES, SPECIFICATIONS, AND COMMODITY STANDARDS. The results of a large part of the research and testing have a direct bearing on the development of technical requirements designed to assure safe working and living conditions. The Bureau thus provides a central source of information to which Federal, State, and municipal authorities, as well as industrial and trade associations, can turn when dealing with problems of safety or with building and plumbing codes. During the year, representatives of the Bureau took an active part in work on revision of the National Electrical Code, the National Electrical Safety Code, the Code for Protection Against Lightning, the American Standard Elevator Safety Code, and other codes in the safety field. Other work in process was concerned with codes for mechanical refrigeration, electrical equipment in coal mines, electrical raceways, wood poles and crossarms, and plumbing systems.

Assistance was rendered to industry in the development of voluntary programs for the elimination of waste, and the Bureau also cooperated with organizations of manufacturers, distributors, and consumers in the development of voluntary commercial standards. Twenty-five such standards—11 Simplified Practice Recommendations and 14 Commercial Standards—were issued during the year.

TESTING, CALIBRATION, AND STANDARD SAMPLES. Over 250,000 tests and calibrations, having a total fee value of more than $1,300,000, were performed for other Government agencies and the public. In addition, about 19,000 standard samples were sold by the Bureau. The total fee value of all the tests, calibrations, and standard samples was approximately $1,400,000.

Typical services of this kind included the sample-testing of about 9,000,000 barrels of cement, the testing and certification of over 2,000 radium preparations sold in this country, distribution of about 1,100 standards of radioactive materials, about 900 measurements of radon in breath samples from

radium dial painters or in the workroom air, the life-testing of more than 5,000 light bulbs (a sampling of over 4,000,000 purchased by the Government this year), the testing of 2,500 samples of microfilm for hypo content, and the sample-testing of about 74,000 clinical thermometers.

Cooperative and Consulting Services. The Bureau is called upon to provide technical and advisory services to every agency of the Federal Government and many State and municipal governments. An example of this service is the development and establishment of Federal Specifications. These specifications result in purchase economies by establishing criteria which govern quality and by providing opportunity for all businesses to compete for Federal trade through the bid system. The Bureau also cooperates extensively with technical and trade associations both in this country and abroad, on problems of concern to the Government and the Nation, particularly those relating to the determination and establishment of scientific quantities and standards. In addition, requests for technical information or advice are received daily from other Federal agencies, State and local governments, universities, industrial plants and laboratories, and private individuals. Such requests accounted for a large proportion of the nearly one-half million pieces of mail received during the year.

Services of an advisory or consulting nature were rendered to almost every agency of the Federal Government. Typical services included consultative assistance to the Veterans' Administration in the preparation of specifications for medical X-ray equipment; aid to the State Department in the design of language record reproducing systems; determination of the causes of aircraft failures for the Civil Aeronautics Board; assistance to the Los Alamos Scientific Laboratory in planning improvement of its timing equipment; development of methods for the modification of diathermy equipment for the Office of the Surgeon General, United States Army; technical advice and testing in connection with the relighting of the Senate and House Chambers; work on the preservation of the Constitution and the Declaration of Independence for the Library of Congress; and study of static electricity hazards in Government hospitals.

The Bureau also participated in the work of hundreds of technical committees, societies, associations, and commissions organized to bring new advances of science into the technology of industry, to standardize materials and products for greater economy and improved quality, and to establish uniform scientific standards throughout the world. Bureau staff members now hold approximately 1,600 positions on such national and international groups. An example is the Bureau's participation in the American Society for Testing Materials, in which the Bureau is represented by 434 committee memberships. The Bureau also holds about 250 memberships on committees of the American Standards Association and is the managing agency for several ASA projects.

OFFICE OF TECHNICAL SERVICES

The program of the Office of Technical Services continued to consist of three principal elements: (1) The maintenance of a clearing house of technical reports from United States and foreign sources; (2) a technical inquiry service for the individual handling of technical questions from business firms; and (3) staff work for the National Inventors Council, a group of distinguished scientists and inventors, serving on a voluntary basis, which seeks the aid of independent inventors in the solution of technical problems for Federal agencies.

During fiscal year 1950 special emphasis was placed on technical aids to small business firms, in accordance with the President's budget recommendation, concurred in by the Congress on the basis of specific committee recommendations. Special small business services included a revitalized technical inquiry program; the inauguration of a monthly Technical Reports Newsletter; the application of trust-fund activities to the reproduction of relatively inexpensive documents, of wide interest to small business firms; and the creation of the post of Research Stimulator, for the purpose of encouraging small manufacturers to pool their resources in seeking research of mutual benefit.

Public Law 776, "to make the results of technological research and development more readily available to industry and business" was under consideration by Congress, but did not become law until September 1950.

TECHNICAL CLEARING HOUSE

To encourage smaller firms to use the Bibliography of Technical Reports, guide to the OTS clearing house of 150,000 technical documents, the magazine was redesigned to permit the annual subscription price to be lowered from $10 to $5. The reduction in the number of pages per issue was partially compensated for by more careful selection of the materials included. As a result, the year's sales of Publication Board reports totaled well over $100,000, about 30 percent of them through the trust fund, and the balance handled in photostat and microfilm form directly by the Library of Congress. Compared to the 3,214 entries in the 12 monthly Bibliography issues released during the year, this represents the greatest number of reports sold per Bibliography listing in OTS history, evidence that the goal of more intensive use of these technical reports is gradually being achieved.

The Newsletter, a monthly bulletin highlighting technical opportunities for small business, achieved a substantial paid circulation and in addition was incorporated in the Bibliography of Technical Reports and separately circulated to a wide audience.

Among the technical documents of special benefit to small business distributed under the trust fund during the fiscal year was a series of more

than 60 volumes under the general title of "Industrial Notes." These reports, originally prepared for Department of Defense installations, were first made available to the general technical public—small factories, machine shops, and metal working plants—through reprints prepared by the Office. The majority of the titles sold for 10 and 25 cents, and public response was unprecedented.

To guarantee continuing valuable accessions to the Publication Board collection, new and improved arrangements were concluded with a number of Federal agencies and outside organizations originating research material, including the Office of Naval Research and the Naval Research Laboratory, the Air Matériel Command, and universities and research foundations doing work under contract for the Government.

During the year the technical data resources of the Office were brought to bear upon the problem of foreign rehabilitation through the auspices of the Economic Cooperation Administration. ECA technical-assistance programs utilizing OTS facilities took two forms:

1. A special fund was allocated to make possible the employment of an additional technical-inquiry staff, specifically for the handling of inquiries from countries participating in the European Recovery Program.

2. Funds were provided to set up a unit for the screening and selection of industrial visual-aid materials—technical motion pictures and slidefilms, etc.—to be forwarded to Europe, where experts would translate text and narration for foreign training programs.

While both these programs came into operation fairly late in the fiscal year, foreign reception of these technical aids has been most enthusiastic, and promises much greater usefulness of the Office of Technical Services clearing house facilities.

INQUIRY SERVICE

Considerable interest was attracted by the renewed offering of technical inquiry service, and the perfection of effective methods for handling such inquiries resulted in the servicing of three times the number of problems handled the preceding fiscal year. This does not include an additional workload of over 41,000 reference inquiries, relating to the catalog and document collection of the Publication Board, which is also administered by the Office of Technical Services.

NATIONAL INVENTORS COUNCIL

Operations of the National Inventors Council, which were on a standby basis prior to the Korean conflict, continued during the 1949–50 period. The council, for which OTS furnishes the staff, released 31 new inventive problems, and received an average of over 100 suggestions each month from independent inventors, which were of possible value to the military and other Federal agencies.

WEATHER BUREAU

The United States Weather Bureau is responsible for providing the meteorological observations and reports, the weather forecasts and the storm, cold wave, and flood warnings required for aeronautics, agriculture, commerce, navigation, and the general public. In order to meet national and local needs for daily weather information used in planning activities in the air, on the ground, and at sea, and for protection of life and property in a country with weather conditions and business activities as diversified as they are in the United States, it is necessary for the Bureau to collect some 10 to 15 million weather reports and publish more than a million separate weather forecasts and warnings each year. During fiscal 1950 the needs for these services in our expanding air commerce and in agriculture and industry and the demands for research and development in meteorology for civil and military requirements of the country were greater than ever before. Through reductions in staff and facilities to a critically low level in some localities, the Bureau managed to satisfy the most urgent new requirements in other localities, but this was accomplished only through overtime work and, in many instances, employees' sacrifice of annual leave. The Bureau's offices in comparison with its Nation-wide responsibilities are considerably below the usual standards in staff and equipment. Its administrative costs are among the lowest.

ADMINISTRATIVE ECONOMIES

Despite traditionally low costs of administration the Bureau during 1950 made further reductions through consolidation of several administrative centers in the field. The seven regional offices in continental United States were consolidated into four, and seven weather records processing centers established a few years ago to supersede the processing of climatological data by hand were reduced to three. Again, in order to facilitate study of field problems and developments through exchange of views between field officials and central office project leaders in technical and scientific matters, the work of field inspection and field correspondence was brought into direct relationship with the central office. These changes not only have made possible the elimination of some of the workload of regional offices, but also have aided program planning and management.

WEATHER SERVICES

The accuracy of weather forecasts, which for common purposes averages about 85 or 90 percent, is always open to improvement and the Bureau has continually sought new techniques to give more exact results and permit extension of the forecasts for longer periods in advance. For several years the Bureau has experimented with a very general 30-day outlook for temperature and precipitation. After information of this longer range forecast reached the public there were repeated demands from business and

industry for its publication. Accordingly, during the year the 30-day outlook was made available through press and radio summaries. Although the outlook is experimental and far from complete in its development, reports from agricultural and commercial users testify to its economic value in planning their longer term operations. Another improvement in weather information services was introduced through a wire-photo weather map by which press associations give wide distribution to the map. Through cooperation of the telephone company the system of forecast distribution by automatic telephone was installed at Cleveland, Ohio, bringing to eight the number of cities which now have this service. Individual telephone calls for this service number about 50,000 per day and on stormy days exceed 200,000, a further evidence of the public interest in and value of this weather forecasting service.

In the South, weather forecasting for cotton growers was amplified to contribute to effectiveness of insecticide dusting and spraying for boll-weevil control and other phases of cotton cultivation, processing and marketing. This is one of several special services rendered to agriculture by the Weather Bureau, services which are instrumental in increasing production and preventing damage to crops in amounts worth many millions of dollars each year.

The growth of nonscheduled flying disclosed deficiencies in weather information for operation of private aircraft. Through conferences with representatives of nonscheduled flyers, the collection and dissemination of in-flight weather reports and other services for the private pilot have been improved. Facsimile weather maps have been installed in several Weather Bureau offices for use in pilot briefing and augmenting forecast services to the public. A definite program for future development through cooperation with State aviation officials has been organized. As a further aid in developing the best use of meteorological facilities for service to all branches of aviation, a CAA–WB planning group has been established. The group gives special attention to coordination of the field activities of these two agencies.

OVERSEAS WEATHER SERVICES

Through the regional conferences of the International Civil Aviation Organization and through the coordinating facilities of the International Meteorological Organization, weather reports and forecasts for international air commerce have been extended and improved. Among the several activities carried on by the Bureau under its responsibilities for international cooperation was its pilot briefing in Korea. Under the ECA program there the Bureau provided meteorologists who furnished flight weather forecasts to pilots and assisted in the training of Korean nationals who will take over the service eventually. Two Weather Bureau employees at Kimpo Airport near Seoul were among the last to be evacuated in 1950 when hostilities arose.

The work of the Bureau under the Philippine Rehabilitation Act of 1946 was brought to a conclusion on June 30 and members of the staff who had assisted in this project for several years returned to the United States. The Philippine Weather Bureau is now maintaining its national meteorological service with modern, well-equipped field stations and a competent forecasting center in Manila. Many Philippine meteorologists in key positions received special training during a year or more of study in the United States. The Manila forecast center serves not only aviation but also the extensive marine interests in that area and the general public. Its typhoon warning system for the islands and adjacent seas is the counterpart of the hurricane warning service in the United States. The library of the Philippine Weather Bureau, completely destroyed during Japanese occupation, has been partially restocked with books provided by the Weather Bureau from surplus in this country.

The network of Arctic weather stations established and operated through cooperation of Canada, Denmark (Greenland), and the United States, was augmented by establishment of a new station at Alert on the northern tip of Ellesmere Island about 450 miles from the North Pole. The station was opened on April 9, 1950, by personnel and matériel transported entirely by airlift through collaboration of the Royal Canadian Air Force, the United States Air Force, the Meteorological Office of Canada, and the United States Weather Bureau. Other stations in the Arctic were resupplied during the summer through transportation services furnished by the United States Navy. The Air Force provided airlift for less extensive fall and spring resupply. The daily weather reports and upper air soundings from these stations are vital to preparation of complete weather maps for the Northern Hemisphere from which forecasts of cold waves and other weather conditions affecting the United States are made.

Through special authorization by Congress two new weather stations were established in the Hawaiian Islands to meet growing meteorological needs in the Pacific. These stations at Hilo and Lihue furnish complete synoptic weather observations and upper air reports. The Bureau, recognizing the meteorological importance of Midway Island in the Pacific, provided a skeleton staff to continue weather observations there after the Navy closed its long-established weather station. When hostilities broke out in Korea the weather reports from this station proved their worth in the emergency airlift for support of military operations in the Korean area. In June, preparations were under way to strengthen meteorological services at Wake Island in mid-Pacific in further aid to increased air operations in this region.

RESEARCH AND DEVELOPMENT

In comparison with the importance of its meteorological problems the Bureau's research offices are small, but through cooperative projects with

other research institutions several important projects beyond those of its own staff were carried on during the year. One of the most promising, although still uncertain in its possibilities, is the forecasting of weather by numerical process based on the speedy calculations of the electronic computer. Because of the complexities of these problems and the inadequacy of present mathematical theory, the project is still in its preliminary stages.

Through funds transferred by the Atomic Energy Commission a weather station was established at Idaho Falls, Idaho. The meteorological work of the Bureau in connection with work of the Commission was continued from previous years at other laboratory sites.

In fundamental physical research the Bureau's research staff worked primarily toward design and installation of apparatus for simulating in the laboratory the processes of the free atmosphere. These studies look toward solving some of the mysteries of cloud and rain formation and providing knowledge essential to greater accuracy in weather forecasting. A pressure chamber for careful observations of the behavior of falling water droplets through distances of about 800 feet has been completed and research in the temperature, humidity and other characteristics of droplets is under way. The results are indicative of processes that enter into the formation and dissipation of clouds and storms under natural conditions.

Among other developments were the installation of radar equipment in Weather Bureau offices at Burrwood, La., Miami, and New York for experimental use in local shower and thunderstorm forecasting; an end-of-the-runway weather observation project in cooperation with the Air Navigation Development Board for improvements in ILS (instrument landing system) landings; a new ceilometer system to improve measurements of cloud heights; a study of line-squalls and associated barometric records looking to relationships which would permit more definite forecasting of tornadoes; and further development of machine card tabulation and analysis in study of atmospheric pollution, airport planning, high-level flight and agricultural correlations. The treatise on recent research in formation and mechanics of thunderstorms was published in a volume entitled "The Thunderstorm" and distributed in May 1950. In the machine processing of weather data, the huge collection of records in the punched-card library of the Weather Bureau, Air Force, and Navy at New Orleans gave the principal working material. The recently developed electronic flood routing machine has speeded up the accurate analysis of data for flood forecasting. Additional units of this equipment have been procured for installation in the Bureau's river forecasting centers on the principal river systems.

On June 30, 1950, the Bureau had 4,521 full-time employees, 3,372 part-time employees, and 8,440 cooperative observers who serve entirely without pay. The number of full-time employees was 127 less than in 1949. Cooperative and part-time observers were not greatly increased in number during the year. As has been the case throughout the history of its 80 years of

operation, the Weather Bureau is deeply indebted to its many cooperative observers and cooperating agencies, notably the CAA, the Coast Guard, and the military departments, who provide many of the weather observations and reports in the vast system of synoptic reports for the hemisphere weather maps without which the extended forecasts and warnings of destructive weather conditions could not be successfully made.

APPENDIX

Officials of the Department

AS OF JUNE 30, 1950, EXCEPT AS OTHERWISE INDICATED

Secretary of Commerce	Charles Sawyer.
Under Secretary	*Vacancy.*[1]
Under Secretary for Transportation	Philip B. Fleming.[2]
Assistant Secretary[3]	Thomas C. Blaisdell, Jr.
Assistant Secretary	Thomas W. S. Davis.
Administrative Assistant Secretary (Administration)	Clarence H. Osthagen.[4]

STAFF OFFICES

Solicitor [Acting]	Matthew Hale.
Executive Assistant to the Secretary	Bernard L. Gladieux.
Director, Office of Program Planning	Ralph D. Hetzel, Jr.
Director, Office of Publications	Donald R. Burgess.
Director, Office of Budget and Management	Francis R. Cawley.
Director, Office of Personnel Administration	Oliver C. Short.
Director, Office of Administrative Services	Gerald Ryan.

BUREAUS AND AGENCIES OF THE DEPARTMENT

Director, Bureau of the Census	Roy V. Peel.[5]
Administrator of Civil Aeronautics	D. W. Rentzel.[6]
Director, Coast and Geodetic Survey	R. F. A. Studds.[7]
Bureau of Foreign and Domestic Commerce:	
Director, Office of Business Economics	M. Joseph Meehan.
Director, Office of Industry and Commerce[8]	H. B. McCoy.
Director, Office of International Trade	Raymond C. Miller.
Director, Office of Field Service	Carlton Hayward.
Inland Waterways Corporation:	
President	A. C. Ingersoll, Jr.
Chairman of the Board	South Trimble, Jr.
Chairman, Federal Maritime Board, and Maritime Administrator.[9]	Edward L. Cochrane.[10]
Commissioner of Patents	John A. Marzall.
Commissioner of Public Roads[11]	Thomas H. MacDonald.
Director, National Bureau of Standards	Edward U. Condon.
Director, Office of Technical Services	John C. Green.
Chief, Weather Bureau	F. W. Reichelderfer.

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[1] Incumbent until Apr. 30, 1950, C. V. Whitney, resigned.

[2] Took office July 24, 1950.

[3] Prior to June 15, 1950, designated as Assistant Secretary for Foreign and Domestic Commerce. Since June 15, 1950, designated as Assistant Secretary for International Affairs.

[4] Took office Nov. 20, 1950. Position established by Reorganization Plan No. 5 of 1950, effective May 24, 1950.

[5] Took office Mar. 9, 1950, succeeding Philip M. Hauser, Acting Director from Aug. 9, 1949.

[6] Succeeded Oct. 4, 1950, by D. W. Nyrop.

[7] Succeeded Leo Otis Colbert upon latter's retirement, Apr. 8, 1950.

[8] Known as the Office of Domestic Commerce prior to reorganization, June 1, 1950.

[9] By Reorganization Plan No. 21 of 1950, effective May 24, 1950, the Federal Maritime Board and the Maritime Administration were created in the Department of Commerce, replacing the United States Maritime Commission, an independent agency. The Chairman of the Federal Maritime Board is, *ex officio*, Maritime Administrator.

[10] Took office Aug. 7, 1950, succeeding John T. Koehler, Acting Administrator from May 24, 1950.

[11] Public Roads Administration was transferred, as Bureau of Public Roads, from General Services Administration by Reorganization Plan No. 7 of 1949, effective Aug. 20, 1949.

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