

SPECIAL
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39TH
ANNUAL
REPORT

of the Secretary
of Commerce

U. S. DEPARTMENT
OF COMMERCE

1951

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39TH ANNUAL
REPORT
of the Secretary
of Commerce



UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1951

Letter of Transmittal

DEPARTMENT OF COMMERCE,
OFFICE OF THE SECRETARY,
Washington, December 20, 1951.

SIRS: Submitted herewith to the Congress is the Annual Report of the Secretary of Commerce for the fiscal year ended June 30, 1951. The opening section presents a general description and interpretation of business and economic developments of the period. This is followed by summary reports of principal activities in the Department's several bureaus and agencies during the year.

Respectfully,

A handwritten signature in dark ink, appearing to read "Paul H. Douglas", written in a cursive style.

Secretary of Commerce.

THE VICE PRESIDENT.

THE SPEAKER OF THE HOUSE OF REPRESENTATIVES.

CONTENTS

	PAGE
Officials of the Department	<i>iv</i>
The National Economy in Fiscal 1951	1
<i>Summary of the Year's Activity</i>	
Office of the Secretary: Advisory and Staff Offices:	
Business Advisory Council	11
Office of the Solicitor	12
Office of Program Planning	14
Office of Publications	15
Office of Budget and Management	17
Office of Personnel Administration	21
Office of Administrative Services	30
Advisor on Negro Affairs	33
Bureau of the Census	33
Civil Aeronautics Administration	40
Coast and Geodetic Survey	47
Bureau of Foreign and Domestic Commerce	51
Office of Business Economics	51
Office of Industry and Commerce	54
Office of International Trade	57
Office of Field Service	64
Industry Evaluation Board	65
Inland Waterways Corporation	66
Maritime Administration and Federal Maritime Board	67
National Production Authority	72
Patent Office	79
Bureau of Public Roads	85
National Bureau of Standards	86
Office of Technical Services	95
Office of the Under Secretary for Transportation	96
Weather Bureau	98

OFFICIALS OF THE DEPARTMENT

As of June 30, 1951, Except as Otherwise Indicated

Secretary of Commerce-----	CHARLES SAWYER.
Under Secretary-----	<i>Vacancy.</i>
Under Secretary for Transportation-----	DELOS W. RENTZEL. ¹
Assistant Secretary for International Affairs---	R. C. MILLER (Acting). ²
Assistant Secretary for Domestic Affairs-----	THOMAS W. S. DAVIS.
Assistant Secretary for Administration-----	CLARENCE H. OSTHAGEN.
Solicitor -----	C. DICKERMAN WILLIAMS.

STAFF OFFICES

Director, Office of Program Planning-----	WILLIAM H. SHAW.
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.
Director, Office of Security Control-----	NEWMAN SMITH.

BUREAUS AND AGENCIES OF THE DEPARTMENT

Director, Bureau of the Census-----	ROY V. PEEL.
Administrator of Civil Aeronautics-----	C. F. HORNE.
Director, Coast and Geodetic Survey-----	R. F. A. STUDDS.
Bureau of Foreign and Domestic Commerce:	
Director, Office of Business Economics---	M. JOSEPH MEEHAN.
Director, Office of Industry and Com- merce.	H. B. MCCOY.
Director, Office of International Trade	LORING K. MACY. ³
Director, Office of Field Service-----	CARLTON HAYWARD.
Chairman, Industry Evaluation Board-----	KURT E. ROSINGER.
Inland Waterways Corporation:	
President -----	A. C. INGERSOLL, JR. ⁴
Chairman of the Board-----	SOUTH TRIMBLE, JR.
Chairman, Federal Maritime Board, and Maritime Administrator.	EDWARD L. COCHRANE.
Administrator, National Production Authority-	MANLY FLEISCHMANN.
Commissioner of Patents-----	JOHN A. MARZALL.
Commissioner of Public Roads-----	THOMAS H. MACDONALD.
Director, National Bureau of Standards-----	EDWARD U. CONDON. ⁵
Director, Office of Technical Services-----	JOHN C. GREEN.
Chief, Weather Bureau-----	F. W. REICHELDERFER.

¹ Resigned Nov. 20, 1951.

² John T. Schneider nominated as Assistant Secretary on Oct. 19, 1951.

³ Acting Director until Oct. 30, 1951; appointed Director on that day.

⁴ Resigned September 25, 1951. William G. Oliphant is Acting President.

⁵ Resigned September 30, 1951. Dr. A. V. Astin is Acting Director.

39TH ANNUAL REPORT OF THE SECRETARY
OF COMMERCE

The National Economy in Fiscal 1951

THE fiscal year 1951 was characterized by sustained economic expansion based primarily on defense preparations. As the year began, only a few days after the start of hostilities in Korea, it became clear to all that our military strength had to be rebuilt quickly to meet the threat of Communist aggression. During the year the United States more than doubled its Armed Forces and provided the matériel to prosecute the Korean campaign. It initiated a greatly enlarged program to produce armaments and made a substantial beginning on an even more formidable program to provide the industrial base required in the event a full-scale war is thrust upon the country.

In the fiscal year, \$33 billion worth of orders for military equipment and construction were placed. On the strength of these orders preparations were made for mass production of many defense items. These preparations involved substantial additions to mining and manufacturing capacity, including the reactivation of more than 300 plants built by the Government during World War II and subsequently retained as industrial reserve. The total military program, including funds unobligated at the time of Korea, new authorizations during the year, and those under active consideration, was approaching \$100 billion by the close of the fiscal year.

Along with defense preparations the American economy was able also in fiscal 1951 to provide a higher volume of consumption, to support an extraordinary rate of private capital formation, and to continue, at a reduced rate as needs lessened with economic improvement abroad, aid to Europe and other areas.

These accomplishments were possible because of a rise of more than one-tenth from the preceding fiscal year in total production, as measured by the gross national product in constant dollars. This expansion resulted from an increase in the labor force (including the Armed Forces), from a reduction of 1,500,000 in the average number unemployed, from

moderately lengthened working hours, from expansion and fuller utilization of facilities, and from continuing technical progress.

In addition to increased total production, the advance in civilian living standards reflected the fact that the armament programs in their initial stages absorbed only a moderately increasing proportion of national resources until late in the fiscal year. By the fourth quarter military purchases absorbed more than half of the quarterly increase in total production. In the coming year they are scheduled to increase more than total output can be expected to expand.

Federal defense purchases are scheduled to rise to one-fifth of the gross national product by the end of fiscal 1952—as compared to one-tenth at the end of fiscal 1951 and less than one-twentieth before Korea. With much of the slack which permits rapid expansion of production eliminated from the economy, by the end of the fiscal year the time was approaching when defense goals could be achieved only with some curtailment in output for civilian use. Actions already taken are reducing nondefense output in a wide variety of metal-using industries and construction.

Trend in Economic Indicators Dominated by Defense Program

The defense program was imposed on an economy already operating at a peacetime peak. In the final quarter of fiscal 1950, national production had advanced to a new record postwar level.

The outbreak of hostilities on June 25, 1950, occurred at a time when recovery from the mild 1949 business recession was still proceeding, with the outlook then for further expansion. Private demand of both business enterprises and individual consumers was strong and rising, production was advancing, and prices were moving upward. Unemployment, at about 3,300,000 or roughly 5 percent of the labor force, had been reduced but still afforded a source of additional workers.

The magnitude of economic expansion during the year is summarized by the fact that gross national product in fiscal 1951 amounted to \$308 billion, as compared with \$263 billion in fiscal 1950. About three-fifths of this 17 percent advance represented increased output of finished goods and services while the remainder reflected higher prices. By the last quarter of fiscal 1951 the gross national product had reached an annual rate of \$326 billion.

During the fiscal year the following major developments took place in the disposition of the gross national product:

(1) National defense expenditures (including atomic energy as well as foreign military assistance outlays and adjusted for comparison with national production) advanced at an accelerating pace from an annual rate of \$12.5 billion in the last quarter of fiscal 1950 to \$33 billion in the last quarter of fiscal 1951. At first, increases were largely for expenditures on the Armed Forces, on capacity expansion, and on the procurement

of civilian-type goods, but by the end of the period expanded deliveries of military hard goods were becoming increasingly important. For the year as a whole deliveries of finished military goods totaled about \$9 billion, but by July 1, 1951, the rate at which war matériel was being completed had increased to three times the pre-Korean figure.

(2) Nondefense purchases of goods and services by the Federal Government dropped from an \$8.5 billion to a \$5.5 billion annual rate during the same period. This reduction was due chiefly to smaller outlays for farm price support programs and foreign economic aid. However, State and local government purchases advanced from a \$19 billion rate to over \$21 billion.

(3) Business acquisitions of producers' durable equipment and private nonresidential construction activity advanced throughout the fiscal year. In its last quarter they were at an annual rate of \$38 billion as compared with \$30 billion a year earlier. This change resulted from price increases, the needs of the defense program, and the continuing strong demand for facilities of a nondefense character. Nondefense demand could be only partially met, however, as a result of materials supply limitations. The magnitude of the expansion in industrial facilities still in process may be seen in the fact that by the end of the fiscal year the machine tool industry had an order backlog for more than 20 months' production—higher than at any time during World War II.

(4) Residential construction reached a peak annual rate of nearly \$14 billion in the first quarter of the fiscal year and thereafter turned downward. By the end of the year the value of such construction had fallen to an annual rate under \$11 billion, as against over \$12 billion a year earlier, despite substantially higher construction costs. The downturn is largely attributable to the much less favorable credit terms available to prospective buyers of new housing as a result of Regulation X and the tightening of the private mortgage market.

In combination, these four basic types of expenditure, together with the small item of net foreign investment, advanced at an annual rate of \$4 billion in the first quarter of the fiscal year and \$8 billion in each quarter thereafter. Their direct effect, together with the indirect influence they exerted upon consumer demand by swelling personal income, and upon business demand by encouraging inventory accumulation of nearly \$9 billion during the year despite a draft on inventories in the first quarter, was to exert a more or less steady upward pressure upon production and prices throughout the fiscal year. Other forces intervened, however, to introduce an irregular character to the timing of price movements and, to a much smaller extent, of production changes. The most important of these forces were anticipatory private buying and Federal Government actions to check inflation.

Need for Facilities Expansion

The defense program required greatly increased capacity to produce basic materials as well as the building and equipment of new factories to turn out end-products. Plans to expand our output of basic minerals and metals were rapidly formulated and work begun, aided by the special provisions for rapid tax amortization of defense facilities authorized by the Revenue Act of 1950. Steel capacity increased more than 5 percent during the year with a much larger expansion scheduled for fiscal 1952. The total steel expansion program now under way will involve an expenditure of nearly \$2 billion. Facilities for producing more steel will require more coke, scrap, and iron ore. Intensive efforts are being made to insure these supplies.

Primary aluminum production increased nearly 12 percent from June 1950 to June 1951 with capacity expansions now in progress to nearly double the pre-Korean output. This program will require more than 1.5 million kilowatts of additional electric power generating capacity.

Supplies of copper and of ferro-alloys will be more difficult to increase; hence military needs must be met by tighter restrictions on less essential products. In these materials we depend heavily on imports and on the use of depleted or low-grade reserves in this country.

The extent to which our defense program has concentrated on enlarging capacity to produce basic materials may be seen in the statistics compiled from certificates of necessity covering accelerated tax amortization. From the start of this program in October 1950 through July 16, 1951, certificates covering new facilities to cost nearly \$8.4 billion had been approved. Nearly two-thirds of this total, or \$5.4 billion, was for facilities to produce more basic materials such as steel, aluminum, chemicals, and petroleum. Expanded transportation and other public utility facilities to cost about \$1.9 billion along with new capacity to manufacture finished products to cost \$1.1 billion had been approved for special tax treatment.

Anticipatory Buying Influences Price Movements

The fiscal year opened with a brief outburst of heavy consumer buying of nondurable goods of wide variety, and a more sustained drive—motivated by fear both of shortages and of further price advances—to acquire many types of durable and semidurable goods. Seeing their stocks of many items reduced by the buying wave, and themselves foreseeing higher prices and possible shortages, businessmen at almost all levels of production joined in a buying outburst to replenish or build up inventories and to place orders for future delivery. Buying pressure, particularly at the consumer level, abated somewhat in the fall months but was resumed again when the intervention of the Chinese in Korea darkened the outlook for peace.

The first quarter buying wave drew down business inventories which in the previous quarter had been increasing at an annual rate of \$5 billion; thereafter inventories again expanded in each of the three remaining quar-

ters at substantial annual rates of \$11.8 billion, \$9.3 billion, and \$14.4 billion, respectively. These inventory gains reflected not only restocking at wholesale and retail levels, but also expansion of manufacturing work in process and larger holdings of raw materials to support increased production.

As a result of heavy demand, one of the sharpest price advances ever experienced by this country took place during the period. From June to February the wholesale price index advanced 17 percent, with prices of some sensitive materials more than doubling. The consumers' price index moved up 8 percent. These inflationary price movements necessitated the imposition of direct price and wage controls in January 1951.

In March came a marked reduction in consumer spending to a level which changed but little for the remainder of the fiscal year. Much of the decline occurred in durable goods, but nondurable purchases were also affected to a lesser degree.

A number of influences contributed to this lowering of consumer demand. The fact that few shortages had actually appeared did much to alleviate earlier fears, and the urgent buying had satiated part of the market. General price controls provided some assurance against further sharp price increases. The military outlook in Korea again improved. Thus the speculative motive underlying the buying wave was largely removed.

The spurt in expenditure following Korea had drawn on demand which would otherwise have been exercised later in the year. Many individuals had completed their programs for acquiring durable goods, had exhausted their readily available liquid assets, or had incurred as much indebtedness as was prudent. Consumer holdings of some nondurable commodities were also abnormally high. Regulation W, instituted to curtail further expansion of installment credit, was also a factor, as was the falling rate of housing completions which dampened the demand for furniture and other commodities required to furnish new living quarters.

The reduction in consumer buying was beyond the expectations of businessmen. Their stocks of many goods—chiefly durables and textile products—backed up and trade firms reduced their orders from producers in an effort to bring inventories into line with the current rate of sales.

Production in the lines most affected was curtailed—in some cases very sharply—but these reductions, which were from exceptionally high levels, were offset in the total production picture by the advancing military program and by the continued expansion in expenditure on producers' durable goods—factories, power plants, railroad rolling stock, etc.

The more striking effect of the abatement in consumer buying was upon prices. The wholesale price index ceased to advance after February and reductions—some quite substantial—appeared in many individual quotations. The consumers' price index did not turn downward, but its rise from February to June was limited to 1 percent. Thus, the fiscal year,

which had begun with prices moving upward at a rate which menaced economic stability, ended with prices on a plateau.

Two incidental effects of the slackening of consumer buying should be mentioned. First, with disposable personal income continuing to advance, the rate of personal savings in the last quarter of fiscal 1951 was unusually high for the postwar period. In this quarter it amounted to 9 percent of disposable personal income. Hence the condition which would at some future date readily permit another sharp rise in consumer spending, in excess of any advance in income, was present. Second, the business inventories accumulated during this period added to the supplies available to meet consumer requirements should defense needs force production of consumer goods below the level of demand.

Higher Costs and Incomes

Attention has been focused on demand elements in the discussion of production and prices because they were most influential in determining the immediate course of events. However, costs—particularly wage and interest rates, and costs of imported raw materials—also advanced during the year, so that, despite higher productivity, by the end of the fiscal year the economy was operating with a substantially increased cost structure which would limit the possibility of price reductions in the future.

Moreover, although average hourly earnings in manufacturing as a whole had risen a little more than consumers' prices, many groups both within and outside manufacturing had not secured an equivalent increase. Pressure to equal or exceed the rise in living costs was still pulling up wage rates and promised to continue to do so. As the year ended, upward pressure upon prices from the cost side promised to be of continuing importance in efforts to prevent inflationary trends.

The higher unit rates of return to labor and capital resources, together with increases in the amounts of these resources available and their fuller utilization, advanced the national income from \$220 billion for fiscal 1950 to \$263 billion for fiscal 1951. Compensation of employees, corporate profits, proprietors' income, rental income, and interest all showed sizable increases over the year. Disposable personal income—the income remaining to consumers after payment of direct taxes—moved up 12 percent to \$214 billion.

Financial Developments

The defense program had other financial repercussions that greatly magnified the threat of inflation. Although national security expenditures of the Federal Government during the year increased fairly slowly, due primarily to the long time required to produce complicated military end-products, total Federal Government expenditures during the year (budget basis) nevertheless rose by about \$4.5 billion in spite of the curtailment of

many nondefense programs. Receipts, however, increased even more rapidly—due largely to the impact of progressive tax rates upon rising levels of individual and corporate income. Whereas in the fiscal year 1950 the Federal Government had operated with a deficit of more than \$3 billion, in 1951 it closed the year with a surplus of more than \$3.5 billion. By the year end, however, the Treasury was operating with a substantial deficit and faced the prospect that this deficit would continue to grow in fiscal year 1952.

In the months just before Korea it was possible for Congress to consider making limited reductions in excise taxes but after the outbreak of hostilities the 1950 tax bill, which had already passed the House, was rapidly transformed into legislation raising income and profits taxes to new peacetime highs. At the close of calendar 1950 the excess profits tax was reimposed retroactively to July 1, 1950; as the fiscal year closed Congress was considering a new revenue measure to produce the highest revenue yield in our history.

Bank loans during the year increased more than \$12 billion despite the voluntary restraint exercised by the banks themselves on credit creation. Mortgage debt on one to four family homes rose \$7.7 billion during the year while outstanding consumer credit increased more than \$1.5 billion. Loans by Federal Government credit agencies also increased by more than \$1 billion. Although much of the increase in business loans was required to finance defense production, there was a considerable increase in credit for less essential purposes during the year also.

Foreign Commerce Expands

The foreign commerce of the United States expanded even more sharply than domestic trade in fiscal 1951.

Merchandise imports increased to meet not only rising security requirements, including those for Government stockpiles, but also increased civilian demand. As a result of both price rises and increased volume, the value of merchandise purchases abroad rose from \$7.5 billion in fiscal year 1950 to \$11.5 billion in fiscal year 1951. In addition to increased dollar receipts from merchandise sales to the United States, foreign countries were able to raise the amount of dollars at their disposal by \$300 million through performance of various services, largely to the Armed Forces in the Far East and to United States tourists in Europe. Foreign countries also obtained \$1.1 billion more than during the preceding year from United States investments abroad.

The greatly improved dollar receipts of foreign countries permitted economic aid, including loans, to be reduced from over \$4.5 billion in fiscal year 1950 to just over \$3 billion in fiscal year 1951. Military aid, however, increased from a small amount in fiscal 1950 to \$1.2 billion.

With more dollars available, it was also possible for many foreign countries to relax their import restrictions. The pent-up demand for United

States goods and services thus released was greatly augmented by the desire of people in foreign countries to purchase in anticipation of future scarcities—the same motives which stimulated the demand in the United States for domestic and imported goods. An equally important spur to United States exports was the rising requirement abroad for foodstuffs and fuels. The former resulted from insufficient harvests in Canada, eastern Europe, and India, the latter from the increased economic activity in western Europe. As a result of these factors, total exports of goods and services rose from \$14 billion in fiscal 1950 to over \$17 billion in fiscal 1951. By the last quarter of the year the annual rate of total exports had reached \$21 billion.

Because the rise in their purchases from the United States lagged in comparison to the rise in dollar receipts, foreign countries during the fiscal year 1951 were able to accumulate approximately \$3.5 billion in gold and dollar assets, in addition to approximately \$500 million which they obtained from new gold production. These accumulations reached a peak early in fiscal 1951 and had almost ceased by its last quarter. Similar accumulations during the preceding fiscal year amounted to only \$1.5 billion.

The rise in the international transactions during the year reflects mainly the preparations for, and the anticipations of, the increase in armaments production throughout the world rather than the actual production of armaments. As armaments absorb a rising part of the production in the North Atlantic countries, their nonmilitary international transactions, due to scarcities of goods available for exchange, may be expected to decline again.

Commerce Department Programs Geared to Defense

The defense effort required prompt realignment of Government programs, including that of the Department of Commerce. As soon as it was apparent that the President would request control powers and would delegate some of them to Commerce, a staff unit was organized using the talents and experience of Commerce personnel who had worked in World War II agencies. Consequently when the Defense Production Act was passed in September and the Department was called on to assume major responsibility for controls over materials required for the defense program, it was possible to begin operations immediately. The National Production Authority, created to handle the Department's new defense responsibilities, moved quickly to limit business inventories, to conserve basic materials for defense needs, and to expedite delivery on Government orders.

Operating first with a simple priority system plus a growing network of material orders applicable to particular industries, production controls kept pace with the expanding military program. By the end of the year it became necessary to supersede this priority system with a controlled materials plan, providing for the distribution of steel, copper, and aluminum. This plan became effective for producers of all products except consumer durable

goods in the first quarter of fiscal 1952 and fully effective in the second quarter.

Because our defense planning called for enlarging with all possible speed our facilities to produce basic materials, construction controls as well as material controls were needed. In October 1950, the National Production Authority prohibited building for recreational, amusement, or entertainment purposes, and in January 1951 required that authorization be obtained before new private commercial construction might be started. In May the requirement that authorization must be obtained to start construction was extended to projects requiring more than 25 tons of structural steel, certain multi-unit residential structures, and single family dwellings costing over \$35,000 (later modified to 2,500 square feet). On July 1, use of copper and aluminum for decorative purposes in construction was prohibited, while on October 1, 1951, the controlled materials plan was extended to construction.

Since its inception the National Production Authority has given special attention to using the resources of small business to the fullest possible extent. Its Office of Small Business, built from a small existing staff of Bureau of Foreign and Domestic Commerce personnel, has helped small firms to participate in Government contracts, to obtain materials and equipment, and has provided technical and managerial assistance.

The emergency revived and strengthened the need for export controls; Congress expressed confidence in the administration of these controls by voting unanimously to continue their authorization through the fiscal year 1953. Exports to North Korea were promptly embargoed while shipments to China, either direct or through feeder areas, were halted. All shipments to countries in the Soviet bloc have been put under direct license control.

Those agencies of the Department concerned with transportation assumed increased responsibilities flowing from defense preparations. The Maritime Administration moved to meet increased shipping requirements by withdrawing more than 500 vessels from the reserve fleet and by staffing the National Shipping Authority, created by Executive order of February 23, 1951, to charter or operate reserve fleet vessels and to mobilize United States merchant and allied shipping if hostilities spread.

An Office of Transportation was also created to provide staff assistance to the Secretary and Under Secretary for Transportation on problems pertaining to national transportation policy. The Civil Aeronautics Administration accelerated its programs to expand and improve airway facilities, to increase the safety of both military and civil aviation, and to provide technical assistance in the promotion of air commerce in the United States and abroad. The Bureau of Public Roads supervised construction of access roads to military reservations, defense industries, and sources of raw materials.

The scientific facilities of the Department were, throughout the year, heavily engaged in defense projects of a technical, developmental, or basic research character. For example, the National Bureau of Standards stepped up its work on devising and testing new electronic equipment, including ordnance components. It is also contributing important advances in nuclear physics, in metallurgy, and in materials testing that will influence the design and performance of weapons and other military supplies. The Coast and Geodetic Survey expanded its production of nautical and aeronautical charts to meet training and operational needs of the military forces as well as continuing commercial demand. The Weather Bureau improved its aviation forecasting and reporting services to meet new military needs and continued its research in atmospheric pollution and diffusion for the Atomic Energy Commission.

The basic information compiled and other services to business performed by offices of the Census Bureau and the Bureau of Foreign and Domestic Commerce have assisted in planning the defense program, gaging its impact on the economy, and judging its progress. The Census Bureau is providing invaluable facilities and experience to the defense agencies for efficient compilation of necessary data for control actions. Personnel from the Office of Industry and Commerce provided the nucleus with which the National Production Authority was able to exercise its control functions without delay. Use of existing Commerce Department field offices to handle NPA business promoted quicker public understanding of necessary control orders and provided prompter and more efficient services to business affected by controls.

Later sections of this report describe, more completely and in detail, the participation of the several agencies within the Department of Commerce in the defense program as well as the normal peacetime programs that are being continued.

Summary of the Year's Activity

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. In addition, the Council maintained standing committees which met at regular intervals on a number of subjects, including manpower mobilization, economic policy, and problems of Latin-American trade.

In conformity with the policy of membership rotation, 10 old members were graduated and 10 new members were added to Council in 1951. The active membership on June 30, 1951, was composed of the following:

- | | |
|--|---|
| *Robert T. Stevens, Chairman, New York, N. Y. | *John L. Collyer, Akron, Ohio. |
| *John D. Biggers, Vice Chairman, Toledo, Ohio. | C. R. Cox, New York, N. Y. |
| *George H. Love, Vice Chairman, Pittsburgh, Pa. | Paul L. Davies, San Jose, Calif. |
| *Philip D. Reed, Vice Chairman, New York, N. Y. | R. R. Deupree, Cincinnati, Ohio. |
| *John C. Virden, Vice Chairman, Cleveland, Ohio. | Fred Rogers Fairchild, New Haven, Conn. |
| S. C. Allyn, Dayton, Ohio. | Benjamin F. Fairless, New York, N. Y. |
| W. L. Batt, London, England. | Marion B. Folsom, Rochester, N. Y. |
| *S. D. Bechtel, San Francisco, Calif. | Henry Ford, II, Dearborn, Mich. |
| Harold Boeschstein, Toledo, Ohio. | John M. Franklin, New York, N. Y. |
| Howard Bruce, Baltimore, Md. | Frederick V. Geier, Cincinnati, Ohio. |
| *Paul C. Cabot, Boston, Mass. | Fred H. Haggerson, New York, N. Y. |
| *Charles S. Cheston, Philadelphia, Pa. | Joseph B. Hall, Cincinnati, Ohio. |
| Lucius D. Clay, New York, N. Y. | Paul G. Hoffman, Pasadena, Calif. |
| | Eugene Holman, New York, N. Y. |
| | *John Holmes, Chicago, Ill. |
| | Charles R. Hook, Middletown, Ohio. |
| | Preston Hotchkis, Los Angeles, Calif. |

*Member of Executive Committee.

A. W. Hughes, New York, N. Y.	Gwilym A. Price, Pittsburgh, Pa.
*G. M. Humphrey, Cleveland, Ohio.	Edgar M. Queeny, St. Louis, Mo.
Austin S. Igleheart, New York, N. Y.	Winfield W. Riefler, Washington, D. C.
*James S. Knowlson, Chicago, Ill.	E. A. Roberts, Mobile, Ala.
Emory Scott Land, Washington, D. C.	Reuben B. Robertson, Jr., Hamilton, Ohio.
E. H. Lane, Altavista, Va.	C. R. Smith, New York, N. Y.
Fred Lazarus, Jr., Cincinnati, Ohio.	John W. Snyder, Washington, D. C.
J. Spencer Love, Washington, D. C.	*A. E. Staley, Decatur, Ill.
George C. Marshall, Washington, D. C.	Gardiner Symonds, Houston, Tex.
John L. McCaffrey, Chicago, Ill.	Juan T. Trippe, New York, N. Y.
Earl M. McGowin, Chapman, Ala.	J. Carlton Ward, Jr., Farmington, Conn.
James H. McGraw, Jr., New York, N. Y.	Thomas J. Watson, Jr., New York, N. Y.
John P. McWilliams, Cleveland, Ohio.	*Langbourne M. Williams, Jr., New York, N. Y.
George H. Mead, Dayton, Ohio.	*Charles E. Wilson, Detroit, Mich.
Thomas A. Morgan, New York, N. Y.	James W. Young, Santa Fe, N. Mex.
George L. Morrison, New York, N. Y.	
T. S. Petersen, San Francisco, Calif.	

*Member of Executive Committee.

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, provides necessary legal assistance for the Department's loyalty program, 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 1951, requests for comments on 387 bills were received from the committees of the Congress, and the views of the Department with respect to 198 bills were prepared and submitted to the Congress; proposed comments with respect to 247 bills were submitted to the Bureau of the Budget for consideration prior to transmission to the Congress. During the same period, other executive agencies, including the Bureau of the Budget, requested the views of the Department with respect to 267 legislative proposals, and replies were submitted on 213 such proposals. Twenty-two legislative proposals were drafted by the Department and submitted to the Bureau of the Budget for clearance, and 11 bills drafted in the Department were submitted to the Congress for enactment. In all, 664 requests concerning legislative proposals affecting the Department were referred to the Office during the year, and 24 items of special interest to the Department were enacted into Public Laws. The Office

played a major role in the drafting of the Defense Production Act of 1950 and of the 1951 amendments thereto.

All contracts approved by the Secretary were reviewed by the Office. The number of contracts, leases, licenses, bonds, agreements, and similar contractual matters prepared or reviewed during fiscal 1951 was 472. 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, 237 matters being referred to these officials were handled. The number of legal opinions and other legal memoranda and correspondence during the year amounted to 378.

The Solicitor is chief law officer of the Inland Waterways Corporation. In this capacity the Office works on contracts, damage and accident claims, rate cases before the Interstate Commerce Commission, problems of Corporation policy, and miscellaneous matters.

The Solicitor serves as Chairman of the Loan Guarantee Advisory Board which passes on applications for V-Loan Guarantees under section 301 of the Defense Production Act of 1950, and the Office of the Solicitor serves as the coordinating agency for the processing of such applications, also for the securing of Certificates of Eligibility requested by other agencies entering into V-Loan guarantees.

The Office of the Solicitor consults with the Office of Budget and Management and various other bureaus with reference to issuance of departmental orders and reviews such orders for legal effect.

The Solicitor's Office was also active in the litigation between the Secretary of Commerce and the R. Stanley Dollar interests over ownership of a block of stock in American President Lines, Ltd., which carried with it control of that company. The activity related particularly to that phase of the litigation in which the Secretary of Commerce, the Solicitor General, the Deputy Attorney General, and several attorneys were charged with contempt of court. The American President Lines, Ltd., formerly the Dollar Steamship Lines, is the principal American flag carrier between the west coast and the Orient. The Solicitor appeared on behalf of the Secretary in the Court of Appeals in the District of Columbia and submitted a brief in addition to a brief submitted by the Department of Justice. The Solicitor also attended and participated in hearings before the Chief Justice of the United States with respect to applications for stays of orders and proceedings of the Court of Appeals.

The Solicitor also assisted the Secretary in the preparation of a letter to Mr. R. Stanley Dollar proposing that the parties jointly sell the stock and continue the litigation over the proceeds. The purpose of this proposal was to avoid injury to the morale of the employees of the steamship line caused by the uncertainty over control, and assure operation by competent private management.

“Dollar Line” matters were continued active at the close of the fiscal year.

In *Ex parte* 175, Increased Freight Rates, the Interstate Commerce Commission entertained the railroads’ petition for a 15-percent increase in rates and charges on interstate freight traffic. The Department of Commerce intervened and the Solicitor, together with Mr. C. E. Childe, appeared on its behalf and supervised the legal aspects of its participation. The Solicitor’s Office attended the actual hearings and reported upon pertinent developments to the Office of the Undersecretary of Commerce for Transportation. The Solicitor’s Office conferred with counsel of other intervening Government agencies to insure orderly participation of all those agencies and, insofar as possible, to coordinate such participation. Together with those other counsel, the Solicitor cross-examined various witnesses of the petitioning railroads. The Department itself submitted in evidence a verified statement of Under Secretary Fleming, dated February 19, 1951, and a verified statement of Dr. Paul M. Zeis, dated May 11, 1951. Each of these statements was checked for legal form and effect by the Solicitor’s Office. The Solicitor’s Office and Mr. Childe drafted an analysis of the evidence presented at the hearings relative to estimated traffic levels and operating revenues for 1951, for submission to the Commission. At the conclusion of the hearings, the Solicitor drafted and submitted a written memorandum on behalf of the Department and presented an oral argument before the entire Interstate Commerce Commission.

Office of Program Planning

The Office of Program Planning is a staff unit serving the Secretary, the Under Secretaries, and the Assistant Secretaries on matters relating to the programs and policies of the Department. Generally, the program and policy problems are the sort that require joint study or action by two or more of the operating bureaus and offices of the Department or coordination of several Department programs or policies with those of other Government agencies. New and emerging problems which cannot readily be assigned to any of the line organizations comprise another important field of activity for the Office.

The small staff of specialists in the Office of Program Planning maintains constant and close liaison with the top officials of the Department, including the heads of the constituent bureaus and agencies; advises and assists in the formulation of policies and programs during their planning stages in order to avoid duplication of effort, insure adequate coverage and achieve integrated departmental action; evaluates existing programs in the light of their contribution to current needs and policies of the Department; and reviews questionnaires and economic and statistical reports requiring clearance by the Bureau of the Budget. In addition, the Office is responsible for program and policy liaison work with other Federal

departments and establishments. This involves membership representing the Secretary and the Department on top level interdepartmental boards or committees, as well as less formal contacts.

Illustrative of the activities of the Office of Program Planning in 1951 are the following:

- (a) Assistance in the development of plans and program for establishing the National Production Authority;
- (b) Assistance in the development of plans and program for the Department's Office of Transportation;
- (c) Assistance to the Secretary in the performance of his responsibilities as a member of the Defense Mobilization Board, and of the Loan Policy Board of the Reconstruction Finance Corporation;
- (d) Participation in Air Coordinating Committee activities especially as regards mobilization planning, including membership on the Resources and Economic Divisions of ACC;
- (e) Coordination for the Secretary of testimony and evidence developed by Federal agencies in support of the St. Lawrence Seaway and Power Project;
- (f) Review and analysis of the problem involved in determining appropriate security restrictions on the release of statistical data collected by the Department;
- (g) Responsibility for departmental liaison with the National Security Resources Board and membership on the Interdepartmental Staff Group of the Board.

Office of Publications

The function of the Office of Publications is that of making the results of the Department's work usable by and known to the people for whose benefit it is done, in most instances businessmen. The Office coordinates information and publications activities of the Department to those ends.

During a great part of the 1951 fiscal year, the Office lent news-release and other facilities to the National Production Authority and assisted in the inauguration of various information programs and procedures of the new agency. The Departmental Newsroom continues to serve as a central distribution point for several hundred representatives of business organizations and the trade press requiring NPA orders, regulations, and releases.

Sales of Department of Commerce publications as reported by the Superintendent of Documents again exceeded \$1 million in the 1951 fiscal year. That figure represented one-fourth of the Superintendent of Documents' entire sales and again surpassed sales of any other Federal agency. Excluded from the record is \$1,329,000 of sales direct from the Department; these consist of copies of patents and trade-marks by the Patent Office and of maps and charts by the Coast and Geodetic Survey.

Given responsibility for conserving paper in the publications program, the Office tightened its project and copy clearance procedures and required detailed justification for purchases of publications for official use in excess of 1,000 copies. Conversion of periodicals, reports, and individual publications from free to paid continued throughout the year. With few exceptions free material is now confined to news releases and administrative material; even for these a charge is made for quantity orders.

During the year the Office reviewed 130 projects with estimated printing costs of \$597,000, nearly \$100,000 more than in the previous year. Only \$194,000 in projects was approved outright. Nearly \$125,000 in projects was disapproved and \$278,000 was approved with conditions. The values of disapproved and conditionally approved projects were, respectively, five and six times those of the previous year.

The Office of Publications maintained contact with representatives of the general and business press through its Departmental Newsroom and distributed to them regular reports and releases of the Department. The Newsroom provided news coverage for the Office of the Secretary and assisted the bureaus and offices in preparing releases bearing on virtually all aspects of the foreign and domestic commerce of the United States. Help was given by the Office to operating units in the preparation, editing, design, and distribution of several major publications.

Through the Office of Publications, the Department received much help from businessmen in disseminating economic facts and information concerning its services to business. The Office took part in the preparation of a number of promotional folders for the Department's publications and services. It directed the design and installation of the Department's exhibit at the first International Trade Fair in the United States at Chicago and cooperated with the bureaus in placing exhibits and making information available at other public affairs.

The Office also furnished information on the Department and its services in reply to requests from several thousand members of the business community and the general public. On its initiative, the Business Service Check List was expanded to include listings of releases of nonmilitary defense agencies outside the Department. The Office developed and distributed informational material to acquaint industry and the general public with the Department's program for Voluntary Protection of Technical Information.

Several important advances were made in publications and information management during the 1951 fiscal year. With close cooperation of the Office, a subcommittee of the Advertising Advisory Committee to the Secretary brought close to conclusion a detailed survey of the publications and services of the Department as they relate to business generally and the advertising industry particularly. Preliminary recommendations to improve the utility of publications have been put into effect with the cooperation

of the bureaus and offices. Staff services to the Advertising Advisory Committee were provided in the Office of Publications. A number of business concerns were interviewed in the field by members of the Office regarding the adequacy and essentiality of Department of Commerce publications.

Two departmental Administrative Orders issued late in the 1951 fiscal year have furthered the information and publications program. One encourages writing for official publication and establishes policies and clearance procedures for officials and employees of the Department writing for private publication. The other establishes procedures for the review and release of all types of informational material.

As a result of continuing cooperation between the Office of Publications and the bureaus and offices, the volume of undelivered release and publications mail returned to the Department, exclusive of NPA's, has declined by 87 percent since 1947 despite the fact that several large bureaus have been assigned to the Department since that year with a corresponding increase in the cost of mailing lists. This is evidence of the Department's efforts to keep its lists up to date and to handle its distribution as economically as possible.

Office of Budget and Management

The Office of Budget and Management reviews and approves all budget estimates of the Department. It controls the funds of the Department and assures that expenditures for the execution of departmental programs follow basic legislative authority. As a management office it reviews organizational structure and develops organizational plans to meet current and evolving needs of the Department. It makes continuing studies of the relationship between functions performed and organizational structure. It audits and investigates administrative and operating practices, procedures, and methods of the Department. In addition to these staff functions the Office performs a complete accounting and auditing service for the Office of the Secretary, the Bureau of Foreign and Domestic Commerce, and the Office of Technical Services, and renders central fiscal advisory service to all bureaus and offices of the Department.

BUDGET ACTIVITIES

The Office of Budget and Management was requested by the constituent bureaus and offices of the Department to consider regular annual budget estimates totaling \$1,081,338,491. After review by the Office, the Secretary of Commerce approved a total of \$1,010,338,000 for transmittal to the Bureau of the Budget. In addition to the annual budget estimates for fiscal year 1952, 13 separate supplemental budgets totaling \$117,847,125 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; once appropriations were made the

Office 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.

During the year, \$3,245,000 was placed in reserve out of the funds appropriated to the Department for fiscal year 1951. Of the amount placed in reserve \$2,778,100 was later used to finance new activities assigned to the Department under the Defense Production Act of 1950.

MANAGEMENT ACTIVITIES

The Defense Production Act of 1950 (enacted in September) with the subsequent delegations and redelegations made thereunder by the President and the Defense Production Administrator assigned important national defense programs to the Secretary of Commerce. The Office of Budget and Management assisted the Secretary and other officials of the Department in providing for the effective and immediate implementation of the new programs by advising on delegations of functions and authority, on creation of new agencies or offices and their organizational structure, and on the redistribution of existing functions related to the new defense activities. Necessary directives and regulations to effect the new programs were promulgated.

Foremost in importance and of immediate concern to the Nation was the implementation of the priorities and allocations functions delegated to the Secretary of Commerce. In view of the magnitude of the operations required to discharge these functions the Secretary created a new agency, the National Production Authority, to administer priorities and allocation functions. The Office of Budget and Management provided management specialists on loan to assist the Administrator of NPA and his key officials in the design and installation of the administrative organization, procedures and methods necessary to place the NPA on a firm operating basis. The Accounting Division of this same office served as the fiscal office of NPA during its infancy and assisted in the establishment of an accounting office within NPA. This was accomplished in the main through transfer of personnel and records from the Accounting Division.

Upon advice from the National Security Council the Secretary established the Industry Evaluation Board within the Office of the Secretary to make studies and take action to establish the security of the economic and industrial resources of the Nation. Here, too, staff assistance was provided by the Office of Budget and Management on matters pertaining to organization and administrative practices.

Other important functions delegated to the Secretary of Commerce to promote the national defense included authority to act as claimant for certain programs and materials, to recommend issuance of certificates of essentiality and necessity for loans and for tax amortization of emergency facilities,

and to provide war-risk insurance for air-and water-borne transportation. Assistance was provided to the Secretary and top officials of the Department by advising on and providing for the redelegation of these functions.

The review of the Department's fiscal activities begun in fiscal year 1950 under the Joint Accounting Improvements Program of the General Accounting Office, the Treasury Department, and the Bureau of the Budget was continued. The Office of Budget and Management assisted in the installation of a new accounting system at the National Bureau of Standards. Similarly a system of accounts current was designed and installed in the Accounting Division for the recording of all financial transactions relating to the working capital fund of the Office of the Secretary. Another accounting system was developed for use by the Accounting Division for transactions involving appropriated, working, and trust funds. During the year a study of the accounting operations in the Civil Aeronautics Administration was begun. This project will be completed during the next year.

Communist aggression caused a need to plan for the continuity of essential defense activities of the Government in the event an enemy attack on Washington should occur. In this connection three projects were undertaken: (1) Developing of plans for decentralization and dispersal of Department activities, (2) securing protection of vital indispensable records, and (3) providing for the emergency relocation of essential activities in the event of a war emergency in Washington. The first and last of these projects were undertaken in cooperation with the Bureau of the Budget, and the other project in conjunction with the National Archives.

In addition to its work in connection with defense activities and the Joint Accounting Improvements Program, the Office of Budget and Management continued its usual management activities during fiscal year 1951. Among the management studies and investigations begun or completed during the year were the following:

1. Conducted a survey on the action taken with respect to the recommendations of the House Appropriations Committee investigative staff regarding the National Bureau of Standards.
2. On the basis of studies and surveys and in cooperation with Inland Waterways Corporation effected greater efficiency in several operations of that agency mostly along financial and budgetary lines.
3. Assisted in the coordination of activities of the Civil Aeronautics Administration and the Weather Bureau of common interest to both agencies and in the classification of responsibilities at field installations of these two bureaus with regard to these activities.
4. Conducted a study of the organization of the Office of International Trade and assisted in effecting changes therein.

5. Participated in developing plans for the reorganization of the Office of the Secretary.
6. Participated in a study of the Federal Field Service conducted by the George Fry and Associates of Chicago, Ill., under contract with the Bureau of the Budget.
7. Initiated an investigation of Comptroller General exceptions to payments made during World War II by a predecessor agency of the Maritime Administration. This investigation resulted in establishing a more expeditious review and processing of the outstanding exceptions.
8. Conducted a study of delegations of authority to field establishments to determine the adequacy of such delegations to enable responsible field officials to carry on their operations as efficiently and effectively as possible.
9. Conducted a Department-wide survey to determine the adequacy of fees and charges made to private persons and business and special public groups for services and publications furnished.
10. Assisted in providing for the decentralization of some activities in the Weather Bureau and the National Bureau of Standards.

MANAGEMENT IMPROVEMENT PROGRAM

Fiscal year 1951 was the second full year of operation of the President's Management Improvement Program. The Office of Budget and Management continued to take the leading role in the development and promotion of the Department's programs.

The necessity of gearing the Department to its emergency functions and the preoccupation of staff resources of the Department with defense matters were two factors working against full implementation of the management program. Nevertheless a year-end review indicated satisfactory accomplishments in this program, even though short of original objectives. Renewed emphasis will be given to this program in the forthcoming year.

ACCOUNTING DIVISION

Workload statistics for the fiscal year are indicative of activity in this division. These statistics show the division issued 52,682 salary checks; processed 10,933 payroll change slips; issued 8,857 bonds; processed 9,710 vouchers; prepared 4,196 schedules of receipts and disbursements; and processed 3,500 transportation receipts and 890 travel orders. These fiscal activities require the maintenance of 950 general ledger accounts, 955 allotment accounts, and 143 business type ledger accounts. The business type ledger accounts are required in connection with the financial transactions of the Department working capital fund. All work of the division was maintained on a current basis, including the necessary reconciliations of the tax, bond, and retirement accounts.

Office of Personnel Administration

During the fiscal year 1951, the Office of Personnel Administration continued its program of decentralizing personnel operations, subject to prevailing policies and regulations, wherever it has been clearly demonstrated that these operations can be performed more efficiently and economically at the operating level.

The Office of Personnel Administration performs the following staff functions for the Secretary on personnel matters:

1. *Staff planning*, including formulation, issuance, and interpretation of policies, regulations, and standards to govern the administration of personnel activities;
2. *Staff review*, including inspections for compliance with Department policies, regulations, and standards, and to determine effectiveness of personnel programs at all levels;
3. *Staff assistance*, including the furnishing of advice and recommendations on specific operating problems.

In its capacity as central personnel office of the Department, the Office of Personnel Administration also continued to discharge the following functions: (1) Performance of certain general personnel activities for the Department at large; (2) provision of a central point of contact for Members of Congress, other Government agencies, and the public on personnel matters affecting the Department; and (3) provision of personnel operating services (through the Personnel Operations Division) on a consolidated basis to designated small offices in the interest of more economical operation.

MANAGEMENT IMPROVEMENTS

The program instituted by this Office for review and appraisal of personnel activities, through surveys and site audits of actions taken by personnel officers of the Department, was continued during the year. These reviews have provided a means for a better understanding of individual personnel problems inherent in the functions of particular offices, thereby enabling recommendations as to remedial procedures. It has also made possible improvements in processing and record-keeping which have been reflected in efficiency of operations. Since additional authority was delegated to process personnel actions, the scope of the audit was increased to check compliance with pertinent Department policies and regulations.

Installation of the "Basic Personnel Records and Files System" in operating personnel offices was advanced through advice and assistance given by this Office on problems arising in connection with conversion to the standard system.

To enable personnel offices to assume greater responsibility for the conduct of personnel matters, regulations contained in the Department's Manual of Orders have been amended to reflect up-to-date determinations of

policy, law and regulation. Current maintenance of these regulations required revision of 12 Department and Administrative Orders and the issuance of a new order on Point Four Personnel Procedures.

As a supplement to these regulations, periodic issuance of informational bulletins to personnel offices was continued for the purpose of providing current information on new legislation, regulations, and personnel policy decisions. The Personnel Operations Guide, which revised the previously issued Personnel Action Processing Guide, was extended to include instructions for preparing personnel forms and recurring personnel employment reports as well as installation and maintenance of the Basic Personnel Records and Files System. The incorporation of these instructions into a single manual has provided an excellent reference source for many phases of personnel operation.

During the year, centralized control of intra-agency transfers was established to prevent one primary unit from raiding another in recruitment of personnel, and to assure full utilization of the qualifications of employees. This program has had a stabilizing effect on movement of employees between constituent units of the Department, and has contributed greatly to better utilization of employees' skills generally.

SPECIAL ACTIVITIES

The National Production Authority was established during 1951 to carry out certain functions in the Defense Production Act of 1950 delegated to the Secretary of Commerce by Executive Order No. 10161, dated September 9, 1950. Establishment of a new primary unit in the Department required prompt staffing and appraisal of current policies to determine modifications necessary for the emergency situation. The rapidly expanding NPA organization also needed advice and assistance on the many personnel problems inherent in a newly established unit; this required close cooperation with the operating personnel branch.

The Department continued to participate with other Federal agencies in improving examining standards for Junior Management and Social Science Assistants in the Federal Government and in furthering of a recruitment program for such candidates in the Department. Forty-three outstanding college graduates were recruited during the year for the various organization units. Initiation of and improvement in existing promotion plans in the several primary organization units required assistance and review by this Office.

Wage administration matters continued to grow in importance during 1951, and required that close attention be given to policies and standards for application to the several bureaus having wage-board employees. Work was begun on an operating manual for position classifiers, which

will cover all aspects of an operating classification program. Close cooperation was maintained with the Civil Service Commission in the preparation of new position standards and the revision of existing ones.

A new simplified performance rating plan was developed and established in the Department. Informational materials were prepared for use by personnel offices in informing supervisors and employees of the new plan.

EMPLOYEE PROGRAMS

Interest in employee suggestion programs was stimulated by furnishing primary units with materials concerning incentive programs in other agencies and in private industries, and by keeping them advised of the continuing interest of Department officials in suggestion programs.

A digest of meritorious suggestions that have been adopted was prepared and issued to all bureaus. During 1951, 255 employee suggestions were adopted at a cost of \$6,285; they resulted in savings of \$97,142.

In addition to continuing the training programs previously inaugurated, such as indoctrination of new employees, efficiency rating training, supervisor and administrative management training, and technical training in aircraft, flight training, meteorology, weather observation, and trade-mark examining, the following new training activities were undertaken: (1) The publication, *Employee Training* in the Department of Commerce, was revised; and (2) arrangements were made for unit training representatives to meet with representatives of a local educational institution for the purpose of providing "after hours" courses for employees.

The Department also continued to cooperate with the Civil Service Commission in the Junior Management Intern Program and the Administrative Intern Program. Nominations of candidates by primary units were reviewed and guidance given to those selected for training.

Ninety employees, representing all primary units of the Department, received recognition for their outstanding or unusual service at the Annual Honor Awards ceremony held in February 1951.

STATISTICS

The official tabulation of organization and employee strength of the Department from its establishment in 1903 through fiscal year 1951 is shown in table 1. On July 1, 1951, there were 54,860 paid employees in the Department including 6,103 part-time employees (5,928 seamen of the Maritime Administration and 9,821 employees who work without compensation are not included in this figure). Table 2 shows the geographic distribution of employees by State within the continental United States, in Territories and possessions, and foreign countries; and it also shows the number and percentage of veterans included in each geographic total.

Table 1.—*Employment and Organization Changes in the Department of Commerce From February 1903 to July 1, 1951*¹

Bureau	Department of Commerce and Labor ²									
	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912
Office of the Secretary		125	155	145		141	137	137	161	158
Bureau of Corporations ⁵		62	67	70		104	120	119	127	129
Bureau of Manufactures ⁶		12	17	26		34	37	40	42	
Bureau of Labor ³		100	101	97		192	125	111	97	93
Bureau of Light houses ⁷		5,282	5,320	5,581		5,617	5,482	5,489	5,455	5,116
Bureau of the Census		1,393	1,491	1,320		1,374	1,354	1,526	1,500	1,335
Coast and Geodetic Survey		314	316	311		351	348	346	353	344
Bureau of Statistics ⁶		63	55	53		57	58	57	58	
Steamboat Inspection Service ⁸		212	213	226		252	261	262	263	262
Bureau of Fisheries ⁹		290	312	305		327	341	361	378	397
Bureau of Navigation ⁸		75	71	73		76	76	75	77	82
Bureau of Immigration ³		1,211	1,209	1,198		1,436	1,453	1,562	1,638	1,658
Bureau of Standards		71	87	95		118	139	173	264	280
Bureau of Foreign and Domestic Commerce										95
Children's Bureau ³										15
U. S. Patent Office										
Bureau of Mines ¹⁰										
Civil Aeronautics Administration ⁴										
Radio Division ¹¹										
Total	¹⁰ 10,125	9,210	9,414	9,500	¹⁰ 10,553	10,079	9,931	10,258	10,413	9,964

See footnotes on p. 28.

Table 1.—Employment and Organization Changes in the Department of Commerce From February 1903 to July 1, 1951—Continued

Bureau	Department of Commerce ^{3 4}														
	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927
Office of the Secretary	139	126	162	171	172	178	183	183	183	183	127	121	125	118	133
Bureau of Corporations ⁵	127	133													
Bureau of Manufactures ⁶															
Bureau of Labor ³															
Bureau of Lighthouses ⁷	5,624	5,620	5,792	5,698	5,713	5,823	5,818	5,820	5,761	5,909	5,787	5,734	5,758	5,628	5,803
Bureau of the Census	1,376	1,377	1,279	1,260	1,247	1,397	1,348	7,413	3,200	1,664	1,548	1,768	2,687	2,723	2,460
Coast and Geodetic Survey	347	728	743	770	790	540	942	816	863	978	947	882	992	985	945
Bureau of Statistics ⁶															
Steamboat Inspection Service ⁸	262	265	270	302	321	347	408	467	404	366	362	365	358	355	359
Bureau of Fisheries ⁹	398	397	419	434	452	420	428	431	424	462	461	567	617	622	671
Bureau of Navigation ⁸	95	101	169	161	167	233	204	217	221	230	220	215	240	239	159
Bureau of Immigration ³															
Bureau of Standards	312	338	384	423	518	1,061	996	900	865	968	911	801	768	763	850
Bureau of Foreign and Domestic Commerce	108	120	171	198	233	220	305	312	333	595	940	1,207	1,145	1,228	1,351
Children's Bureau ³															
U. S. Patent Office													1,228	1,187	1,141
Bureau of Mines ¹⁰													971	980	949
Civil Aeronautics Administration ⁴															62
Radio Division ¹¹															81
Total	8,788	9,205	9,389	9,417	9,613	10,219	10,632	16,544	12,254	11,355	11,303	11,660	14,889	14,828	14,964

See footnotes on p. 28.

Table 1.—*Employment and Organization Changes in the Department of Commerce From February 1903 to July 1, 1951—Continued*

Bureau	Department of Commerce—Continued											
	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939
Office of the Secretary-----	144	142	144	205	201	163	139	141	179	150	159	179
Bureau of Lighthouses ⁷ -----	6,205	6,710	7,211	7,879	7,814	7,252	5,166	5,071	5,094	5,065	4,132	-----
Bureau of the Census-----	2,518	2,007	11,599	6,927	4,043	1,813	2,107	3,914	2,501	1,869	2,196	1,728
Coast and Geodetic Survey-----	991	986	1,044	1,259	1,280	1,882	1,073	3,439	1,234	1,112	985	1,347
Bureau of Marine Inspection and Navigation ⁸ -----	-----	-----	-----	-----	-----	-----	-----	-----	679	837	1,011	958
Steamboat Inspection Service ⁸ -----	358	367	366	427	420	571	579	643	-----	-----	-----	-----
Bureau of Fisheries ⁹ -----	700	966	780	903	1,193	922	682	936	839	752	1,200	-----
Bureau of Navigation ⁸ -----	166	174	173	201	192	-----	-----	-----	-----	-----	-----	-----
Bureau of Standards-----	900	965	1,055	1,066	1,035	979	694	709	816	842	926	946
Bureau of Foreign and Domestic Commerce-----	1,258	1,426	1,738	1,575	1,538	1,429	814	1,052	1,159	1,153	856	897
U. S. Patent Office-----	1,191	1,274	1,377	1,410	1,425	1,389	1,313	1,302	1,348	1,356	1,372	1,383
Bureau of Mines ¹⁰ -----	1,111	1,049	1,061	978	882	-----	-----	-----	-----	-----	-----	-----
Civil Aeronautics Administration ⁴ -----	133	207	263	272	272	270	2,050	2,685	2,133	2,326	-----	-----
Radio Division ¹¹ -----	100	120	156	173	189	-----	-----	-----	-----	-----	-----	-----
Federal Employment Stabilization Board ¹² -----	-----	-----	-----	-----	28	19	9	9	-----	-----	-----	-----
U. S. Shipping Board Bureau ¹⁴ -----	-----	-----	-----	-----	-----	-----	62	63	66	-----	-----	-----
Inland Waterways Corporation-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	3,447	2,950
Weather Bureau-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Office of Surplus Property ¹⁵ -----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Bureau of Public Roads-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Maritime Administration and Federal Maritime Board-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Government Patents Board-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
National Production Authority-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Total-----	15,467	16,455	26,955	23,358	20,608	17,571	14,688	19,964	16,048	15,522	16,284	10,388

See footnotes on p. 28.

Table 1.—*Employment and Organization Changes in the Department of Commerce From February 1903 to July 1, 1951—Continued*

Bureau	Department of Commerce—Continued											
	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951
Office of the Secretary	216	286	366	355	365	390	703	958	728	698	662	880
Bureau of Lighthouses ⁷												
Bureau of the Census	¹³ 12,687	8,671	6,936	4,925	4,600	¹³ 6,489	5,861	4,411	4,315	¹³ 2,733	¹³ 2,849	¹³ 2,698
Coast and Geodetic Survey	1,329	1,521	2,097	2,781	2,415	1,924	2,160	2,285	2,628	2,645	2,455	2,469
Bureau of Marine Inspection and Navigation ⁸	924	1,013										
Steamboat Inspection Service ⁸												
Bureau of Fisheries ⁹												
Bureau of Navigation ⁸												
Bureau of Standards	988	1,190	1,720	2,267	2,326	2,311	2,262	2,522	2,809	3,288	3,112	3,949
Bureau of Foreign and Domestic Commerce	863	853	946	853	824	809	2,185	2,137	1,905	1,948	1,634	2,923
U. S. Patent Office	1,341	1,326	1,399	1,228	1,273	1,267	1,460	1,826	2,005	2,010	1,960	1,905
Bureau of Mines ¹⁰												
Civil Aeronautics Administration ⁴		6,019	8,056	10,120	11,492	10,847	12,953	14,884	17,056	18,452	18,045	18,390
Radio Division ¹¹												
Federal Employment Stabilization Board ¹²												
U. S. Shipping Board Bureau ¹⁴												
Inland Waterways Corporation	3,212	3,137	2,544	2,602	2,667	2,021	1,852	1,573	1,551	783	840	875
Weather Bureau		5,653	6,142	6,612	6,876	6,754	7,499	7,907	7,938	7,911	7,893	7,999
Office of Surplus Property ¹⁵						4,435						
Bureau of Public Roads											4,018	3,833
Maritime Administration and Federal Maritime Board											6,409	¹⁰ 4,475
Government Patents Board												16
National Production Authority												4,448
Total	21,560	29,669	30,206	31,743	32,838	37,247	¹⁷ 36,935	¹⁸ 38,503	40,935	40,468	49,877	²⁰ 54,860

See footnotes on p. 28.

¹ On or about July 1 of each year.

² Created by act of Feb. 14, 1903 (32 Stat. 826).

³ Labor functions removed and placed in new Department of Labor by act of Mar. 4, 1913 (37 Stat. 736).

⁴ 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 to Commerce Department from Interior Department by E. O. of Apr. 1, 1925.
Inland Waterways Corporation.	1939 to present—transferred to Commerce Department from War Department, July 1, 1939.
Weather Bureau.....	1940 to present—transferred to Commerce Department under President's Reorganization Plan No. IV, June 30, 1940.
Civil Aeronautics Administration.	1940 to present—transferred to Commerce Department under President's Reorganization Plan No. IV, June 30, 1940.
(Aeronautics Branch, 1927 to 1934—name then 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.
Government Patents Board..	1950 to present—Executive Order 10096 of Jan. 23, 1950 (attached to Department of Commerce for house-keeping purposes only).
National Production Authority.	1950 to present—Defense Production Act of 1950 (P. L. 774; 64 Stat. 798).

⁵ Transferred to Federal Trade Commission, Mar. 16, 1915, by act of Sept. 26, 1914 (38 Stat. 718).

⁶ Consolidated with Bureau of Foreign and Domestic Commerce upon its establishment by act of Aug. 23, 1912 (37 Stat. 407).

⁷ Transferred to Treasury Department by Reorganization Plan II, July 1, 1939 (originally established as Lighthouse Service).

⁸ Consolidated with and name changed to Bureau of Navigation and Steamboat Inspection June 30, 1932, and on May 27, 1936. Transferred to Treasury Department Mar. 1, 1942 by E. O. 9083.

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

¹⁰ Transferred to Interior Department Apr. 23, 1934 by E. O. 6511 of Feb. 22, 1934.

¹¹ Transferred to Federal Radio Commission July 20, 1932, by E. O. 5892.

¹² Abolished and functions transferred to National Resources Planning Board by Reorganization Plan No. I, July 1, 1939.

¹³ In addition to the number of employees shown, the Bureau of the Census employed the following numbers of temporary census employees to take special major censuses. The regular force also was increased during other years to take censuses of unemployment, manufactures and business, agriculture and irrigation, government, etc.; employment figure for these censuses is included in the employment figures in the above table. Postdecennial years, except 1951, also include employees appointed for the work of the decennial census:

1940.....	100,000 (approximation).
1945.....	31,226.
1949.....	6,424.
1950.....	12,450 (plus approximately 134,000 enumerators for brief periods which terminated prior to July 1, 1950).
1951.....	4,173.

¹⁴ Transferred to U. S. Maritime Commission Oct. 26, 1936, by act of June 29, 1936 (49 Stat. 1985).

¹⁵ Transferred to Reconstruction Finance Corporation Nov. 5, 1945, by E. O. 9643.

¹⁶ Only total figure available.

¹⁷ During the 1946 fiscal year a large portion of the Foreign Economic Administration was transferred to the Department of Commerce. In addition, part of the Smaller War Plants Corporation was transferred to the Department; the Office of Civilian Defense was transferred to the Department and was promptly liquidated; and the Office of Production, Research, and Development was transferred from CPA to the Department.

¹⁸ 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.

¹⁹ This figure does not include 5,928 seamen.

²⁰ This figure does not include 9,821 employees who worked without compensation for the Department, nor are such persons included in other figures on the table. It does include 6,103 part-time workers who actually worked a total of only 1,376 man-months during June 1951.

Table 2.—*Geographic Distribution of Department of Commerce Employees as of December 31, 1950*

<i>Location</i>	<i>Total number of employees</i>	<i>Number with veteran preference</i>	<i>Percent veterans</i>
Alabama.....	884	414	46.8
Arizona.....	203	110	54.1
Arkansas.....	234	117	50.0
California.....	2,704	1,394	51.5
Colorado.....	609	302	49.5
Connecticut.....	112	65	58.0
Delaware.....	33	17	51.5
District of Columbia.....	15,165	5,365	35.3
Florida.....	826	459	55.5
Georgia.....	1,025	500	48.7
Idaho.....	245	121	49.6
Illinois.....	1,028	520	50.5
Indiana.....	457	212	46.3
Iowa.....	278	112	40.2
Kansas.....	541	211	39.0
Kentucky.....	234	114	48.7
Louisiana.....	834	402	48.2
Maine.....	136	78	57.3
Maryland.....	5,297	1,257	23.7
Massachusetts.....	398	218	54.7
Michigan.....	423	247	58.3
Minnesota.....	325	173	53.2
Mississippi.....	277	105	37.9
Missouri.....	1,935	734	37.9
Montana.....	420	237	56.4
Nebraska.....	326	146	44.7
Nevada.....	138	76	55.0
New Hampshire.....	171	93	54.4
New Jersey.....	270	160	59.2
New Mexico.....	361	187	51.8
New York.....	2,620	1,337	51.0
North Carolina.....	608	340	56.1
North Dakota.....	150	64	42.6
Ohio.....	731	405	55.4
Oklahoma.....	765	355	46.4
Oregon.....	789	390	49.4
Pennsylvania.....	3,895	1,230	31.5
Rhode Island.....	57	28	49.1
South Carolina.....	218	100	45.8
South Dakota.....	138	71	51.4
Tennessee.....	426	249	58.4
Texas.....	2,401	1,246	51.8
Utah.....	359	173	48.1
Vermont.....	61	29	47.5
Virginia.....	1,936	1,017	52.5
Washington.....	1,362	693	50.8
West Virginia.....	194	98	50.5
Wisconsin.....	231	97	41.9
Wyoming.....	234	127	54.2
Total, United States.....	53,061	22,135	41.7
Alaska.....	1,867	933	49.9
Panama Canal Zone.....	123	87	70.7
Canton Island.....	74	48	64.8
Guam.....	73	34	46.5
Hawaii.....	646	358	55.4
Midway.....	34	25	73.5
Puerto Rico.....	129	94	72.8
Swan Island, W. I.....	6	4	66.6
Virgin Islands.....	21	12	57.1
Wake Island.....	158	78	49.3
Total (Territories and possessions).....	3,131	1,673	53.4
Argentina.....	3	2	66.6
Bolivia.....	3	-----	-----
British West Indies.....	11	-----	-----
Canada.....	35	15	42.8
Columbia.....	1	1	100.0
Costa Rico.....	139	2	1.4
Ecuador.....	2	-----	-----
Egypt.....	3	1	33.3
El Salvador.....	1	-----	-----
England.....	11	5	45.4
Ethiopia.....	2	1	50.0
France.....	5	2	40.0
Greece.....	12	6	50.0
Greenland.....	11	7	63.6
Guatemala.....	16	4	25.0

Table 2.—*Geographic Distribution of Department of Commerce Employees as of December 31, 1950—Continued*

<i>Location</i>	<i>Total number of employees</i>	<i>Number with veteran preference</i>	<i>Percent veterans</i>
Honduras.....	1	1	100.0
Iceland.....	16	15	93.7
Ireland.....	6	3	50.0
Japan.....	4	2	50.0
Mexico.....	2	1	50.0
Nicaragua.....	5	-----	-----
Panama.....	10	3	30.0
Peru.....	5	2	40.0
Philippine Islands.....	195	29	14.8
Thailand.....	3	1	33.3
Turkey.....	43	15	34.8
Venezuela.....	2	2	100.0
Total (foreign countries).....	547	120	21.9
Grand total.....	56,739	23,928	42.1

Office of Administrative Services

This Office provides certain departmental services such as procurement and printing, space allocation, and records maintenance. It also furnishes administrative service to the Office of the Secretary and to other constituent agencies of the Department not having individual service units and guides the application of administrative policies and procedures throughout the Department.

DIVISION OF PRINTING SERVICES

The Division of Printing Services is charged with reviewing and coordinating the printing, visual services, duplicating, distribution, and forms standardization programs for the Department. During the year it also performed similar services for other agencies not a part of the Department.

Among the several special printing programs which were continued was the Seventeenth Decennial Census. This program, consisting mostly of typing and printing of final statistics, will continue during fiscal years 1952 and 1953. New printing programs inaugurated were those for the Defense Production Authority and the National Production Authority. The Division was able to provide all necessary services to these defense agencies, including printing, duplicating, distribution, forms design, and other related activities.

The Division is composed of the following sections: The Printing, Graphics, and Photographic Section, which handles all relations with the Government Printing Office; the Duplicating Section, which includes multilith, photostat, and mailing service; 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 closely with the Office of Publications to carry out general policy as laid down by that office with regard to format of publications, posters, exhibits, photographs, and all other visual media.

DEPARTMENT OF COMMERCE LIBRARY

The Department Library provided 156,771 reference and loan services, an increase of 31,725 over the previous year, to bureaus and offices of the Department, including the National Production Authority, as well as to other Government agencies, libraries, businessmen, and the general public. A record number of 86,198 publications were loaned and 39,251 reference questions answered, an increase of 13,911 over the previous year. More than 28,000 patrons came in person to the Library and more than 23,000 telephone requests were received. Publications processed totaled 404,039 and 491,704 records were made in the acquisition, cataloging, classification, maintenance, and servicing of the collection, and in the preparation of bibliographies and other lists. The cataloged collection numbered 345,580 volumes; 3,304 periodicals were received currently.

The Library published 59 lists during the year, including the Library Reference List and the Business Service Check List. The Business Service Check List was expanded in March, following the recommendation of the Advertising Advisory Committee to the Secretary, to include all defense agency publications, other than those published by the Department of Defense, in addition to the Department of Commerce publications. Work on the first section of a Department of Commerce List of Publications was completed and final revision of the second section, the subject guide, is in process.

In December 1950 the Economic Stabilization Agency Library was established to provide both legal and economic library services, being operated, by contractual agreement, as a branch of the Department Library. On June 30 the ESA Library collection, including Office of Price Administration publications and volumes from the OPA collection which were transferred from the Department Library on indefinite loan, and new publications purchased by ESA, numbered approximately 10,000 volumes. During the 7 months from December through the end of the fiscal year, 15,787 publications were loaned and 11,161 reference requests were answered.

PROCUREMENT DIVISION

As in previous years, the volume of each type of work performed by the Procurement Division continued to increase. Contributory factors in 1951 were (1) the general expansion of all offices of the Department and (2) the addition of the National Production Authority.

The value of purchase documents issued increased from \$1,087,000 to approximately \$2,500,000. The number of contracts examined for the several bureaus of the Department increased from 227 to 348, while their value increased from \$7,000,000 to \$13,000,000. The value of supplies and forms issued increased from \$210,000 to \$296,000. Approximately

8 million forms were issued. Shipments by the Receiving and Shipping Section increased from 6,000 to over 12,000.

In the property management field, the Property Section acted on over 600 "reports of excess property" received from the bureau and offices of the Department. The value of these reports increased from \$2,500,000 to \$4,000,000. The approximate cost value of all property declared excess by the Department to the General Services Administration was \$3,000,000. The conservation program, which is concerned with the full utilization of excess property in lieu of new purchases, effected an estimated \$300,000 in direct savings to the Department. The Typewriter Repair Section cleaned, overhauled, or repaired 3,865 typewriters. The square footage of space occupied by the Department increased from 3,439,572 to 3,878,285 and the number of buildings increased from 30 to 32.

SPECIAL SERVICES STAFF

During the 1951 fiscal year, the major function of the Special Services Staff was the maintenance of the Information Office for the public, the bureaus of the Department, and other groups housed in Commerce space though not necessarily integral parts of the Department. Included were such organizations as the Air Navigation Board, the Business Advisory Council, the Civil Aeronautics Board, the Government Patents Board, the Inland Waterways Corporation, and interdepartmental groups on which the Department holds membership like the Advisory Committee on Export Policy, the Interdepartmental Committee on Critical Occupation and Essential Activities, the Inter-Agency Critical Areas Committee, and others presently important due to the defense effort.

The Information Office received an average of 250 visitors a day, and either supplied answers to, or referred to appropriate sources in the Department or elsewhere, some 865 daily inquiries by telephone. Subjects of questions frequently were unrelated to this Department's agenda, or, for that matter, to the program of any Federal agency.

The increase in volume of requests for information was largely attributable to the setting up of the National Production Authority as one of the Department's Bureaus. The new, and for the most part wholly unfamiliar subjects of inquiries touching upon this organization and its functions, consumed a great deal of time and required especial resourcefulness and tact on the part of the information personnel. Late in the fiscal year the Defense Production Administration was added to the group serviced.

Essential directories and organizational charts were maintained, a sizable task in view of the frequent shifting of functions and staffs, and the ever-increasing personnel of the new groups. The 12,000 or more personnel records, which constitute the Department's sole central locator system, also were maintained, and weekly reports were prepared on volume and character of work.

There was an increase in number of inquiries from congressional members and committees, as well as from other Federal offices, foreign missions resident in Washington, and visitors from abroad. Telephone inquiries and visitors seeking assistance regarding new and proposed defense organizations, even though not connected with the Department of Commerce, were numerous.

Advisor on Negro Affairs

This office advises Department officials concerning Negro reaction to policies and programs of the Department, provides assistance to Negro businessmen, and acts as consultant on personnel problems.

In fiscal 1951 the Sixth Conference on the Negro in Business was held for 300 representatives of Negro organizations. The Adviser also participated in a number of small business clinics and institutes throughout the country. Special help, including preparation of reports, was given to Negro-owned lending institutions.

BUREAU OF THE CENSUS

Defense mobilization has placed many new demands for statistical data on the Bureau. These data are needed for planning specific programs, for administering these programs, and for evaluating the results of the effort expended. New tabulations of existing data, expansion of series already being collected, development of new information, and modifications of current tabulations have been major elements in the Bureau's activities during the year.

At the same time the processing of the 1950 Censuses of Population, Housing, and Agriculture has continued. By the end of the year the flow of reports based upon these censuses was well under way.

Modifications required by security considerations were made in the publication program of the Bureau; some series previously published regularly are now available only on a restricted basis, or are published only after sufficient time has elapsed to deprive the information of possible value to enemies.

DEFENSE PROGRAM

In meeting the needs of defense programs, the Bureau of the Census serves in three important ways: (1) In furnishing the basic data needed for studies of the social and economic structure and activity of the Nation as part of its regular reporting program; (2) in preparing special tabulations from existing records in its files; and (3) in making its skills and facilities available on a service basis to meet data needs of the defense effort and to handle large-scale overflow and temporary statistical tasks for other agencies of Government.

REGULAR REPORTS. The large amount of information issued by the Bureau on population, housing, industry, business, foreign trade, agriculture, and governments found immediate widespread application in planning industrial allocations, manpower utilization, civilian defense, and many other aspects of mobilization. Reports were already available covering manufacturing in 1947 in detail. Reports resulting from the 1948 Census of Business were issued during the year.

To meet special needs, adjustments in the content and priority of reports covering the 1950 Censuses of Population, Housing, and Agriculture were introduced. For example, the Standard Metropolitan Area tabulations were scheduled ahead of other tabulations to meet specific requests from agencies engaged in handling manpower and civilian defense problems.

SPECIAL TABULATIONS. Numerous special tabulations to serve defense purposes have been made from returns of the recent Censuses of Manufactures, Business, Population, Housing, and Agriculture. The records on file in these censuses make it possible to fill many special needs for data without additional collection of information in the field.

SPECIAL SERVICES IN COLLECTING AND COMPILING DATA.—The Bureau has been asked to act as statistical agent for the National Production Authority and for other agencies engaged in defense activity. In some instances, the needs for information have been met by expanding or adapting the Bureau's regular surveys, with the extra expense being met by the agency for which the information was obtained. On industry surveys, this involved such items as an additional column or columns to permit separation of rated from unrated orders, questions on manufacturers' inventories, on orders past due, and on other facts needed for mobilization planning. On the current population survey, this involved obtaining, through supplementary questions on the regular monthly form, information needed to study the labor reserve, such as estimates of the number of persons working part-time but available for full-time work, relationships of such characteristics as marital status, migration, and school enrollment to labor force participation, the extent of dual job holding among employed persons, and similar items.

An example of one of the important new surveys which the Bureau is conducting for the defense agencies is the quarterly Plant Operations Report in the metalworking area. In this survey, which covers approximately 8,000 of the largest metal fabricating plants, data are obtained relating to the level of employment; dollar value of shipments of products; unfilled orders; consumption of steel, aluminum, and copper by shape and form; and forecasts of future operations. This information is assembled in detailed tabulations by pre-mobilization industry and present major activity, by product specialization, and other categories specified by the defense agencies.

Another example of a special study conducted by the Bureau was a Survey of Occupational Mobility taken at the request of the Air Force in January 1951, in cooperation with the Social Science Research Council. This

study was undertaken in order to determine how a cross section of the population moves up or down the occupational ladder during a period of war and postwar activity. Six cities—Chicago, Los Angeles, New Haven, Philadelphia, St. Paul, and San Francisco—were included in the survey. The results are to be analyzed by staffs of university research centers in those cities, under the direction of the Social Science Research Council.

Because of its experience in a wide range of statistical problems, the staff of the Bureau was called upon for assistance and advice in many ways. Some key staff members were taken directly into defense agencies. Much time of staff members was occupied by requests for such assistance as designing and selecting samples or making available the map resources of the Bureau to defense activities. Within the limits of applicable census laws, the mailing lists available from the Censuses of Manufactures and Business were used to reach producers and distributors in critical areas quickly. The 68 permanent field offices of the Bureau were used to advantage to get field surveys into operation and to obtain special information. A defense tabulation unit was established within the Machine Tabulation Division to assist in meeting the tabulation needs of defense agencies.

MAJOR CENSUS PROGRAMS

On November 2, 1950, the Secretary of Commerce reported to the President the final State populations as determined by the Seventeenth Decennial Census. This report was almost 1 month earlier than the date required by law. The official report indicating the changes in the representation of the various States in the House was officially transmitted to the Congress on January 9, 1951.

The processing of returns continued throughout the year. Because of the large volume of work, a special office was established in Philadelphia, where approximately 70 percent of the editing, coding, and preparation of punched cards was done for the Censuses of Population and Housing. In Washington, D. C., work was carried on at three locations within the city, as well as in Suitland. These operations were virtually completed by the end of the year and the final stages of tabulation and publication were under way. By June 30 the preparation of final reports on the number of inhabitants in the small areas, townships, villages, etc., within each State was 40 percent complete. Preliminary reports on the population of each county had been issued. Through the use of sampling methods special advance tabulations giving the characteristics of population and of dwelling units had been published for the United States as a whole, for the 10 largest States, and for 45 of the 57 largest metropolitan areas. The issuance of final reports was well under way. Preliminary reports on agriculture data were available for 986 counties.

At no time is the importance of national censuses so apparent as during the period between the completion of field work and availability of final

results. The magnitude of a complete inventory of the Nation's people, homes, and farms merely reflects the large size of the country. Handling and tabulating returns for 150,697,361 persons, 45,875,000 homes, and 5,379,000 farms is a large, technical, and time-consuming operation. At peak, approximately 10,000 employees were engaged in processing these reports which had been gathered by 132,000 enumerators during the previous fiscal year.

The Bureau is under constant pressure to make available certain detailed figures for use in official actions throughout the Nation. While every effort is made to comply with specific requests, the flow of basic materials must be maintained to be of maximum service to all at the least possible cost to the Government.

Some adjustments in priority of preparation and release of information were made to meet specific needs of defense agencies. In cases where an agency was willing to meet the extra cost involved and where it was possible to make personnel available for the special work without damage to the Bureau's total work program, the Bureau has cooperated in meeting these special needs. An outstanding example of such an undertaking was the special block tally made for New York State. The constitution of that State requires that State Assembly and Senatorial Districts be based on citizen populations. If the data were not available from the census, it would have been necessary to take a special census of the State. However, it was possible to arrange to have this information obtained from the 1950 Census of Population schedules, with the extra expense involved borne by the State of New York.

By July 1, 1951, the publication of the 1948 Census of Business was virtually complete. There remained only the printing of 20 special subject bulletins and the assembling of printed material into 7 bound volumes. One of the seven volumes comprising the final reports of this census had been sent to the binder and the remaining six were scheduled for binding before November 30, 1951. During the year ending June 30, 1951, 152 bulletins containing final area statistics (United States, State, metropolitan area, county, and city), and 12 bulletins containing final statistics for a variety of special subjects (merchandise line of commodity sales, credit, sales size, employee size, etc.) were prepared, printed, and published.

Early in the fiscal year the act of September 7, 1950, was passed requiring that a Census of Governments be taken in 1952 and every 5 years thereafter. This law replaced that portion of the Permanent Census Act of 1902, which authorized such an undertaking once a decade. Accordingly, some preparatory work was started. However, subsequent congressional action failed to provide funds for taking this census and preparatory work was discontinued.

The first steps have been taken in preparatory work for the 1953 censuses which, according to law, will cover manufactures, mineral industries, and

other businesses, including the distributive trades, service establishments, and transportation.

OTHER ACTIVITIES

FOREIGN TRADE STATISTICS. The Bureau continued its regular program of releasing current information on the foreign trade of the United States. A new import classification schedule (schedule A) was issued in loose-leaf form, replacing the classification of January 1, 1946. Plans were inaugurated for the preparation of the January 1, 1952, edition of schedule B, Statistical Classification of Domestic and Foreign Commodities Exported from the United States. The work of preparing the schedule was coordinated through the Bureau of the Budget with a large representation of industry as well as Government members.

Provisions for assuring the security of certain restricted information compiled by the Bureau were extended considerably during 1951 as a result of the increased military aid programs of the United States. Extensive work with the Defense and State Departments was also necessary to obtain information on Mutual Defense Assistance program shipments for inclusion in United States export statistics.

ANNUAL SURVEY OF MANUFACTURES. Work proceeded on both the 1949 and 1950 Annual Surveys of Manufactures. The 1949 survey was completed through the table preparation stage by the end of the fiscal year. Final figures, published in July and August, 1951, were available covering manufacturing employment, payrolls, and man hours, value added by manufacture, expenditures for new plant and equipment, value of shipments of selected classes of products, and quantity and value of metals consumed by metal fabricating plants. The 1950 annual survey was completed through the machine tabulation stage of processing.

CURRENT BUSINESS STATISTICS. The availability of 1948 Census of Business data permitted a redesign of the reporting panel of large stores for Current Retail Reports. The net result of the redesign was a decrease in the number of panel members and the inclusion of all of those very large establishments which have a disproportionately large effect on the trend and level of retail trade. The coverage of small retail stores under the program was extended significantly by enlarging the area sample so as to include about twice as many establishments. In the field of chain-store coverage, extensions were made so that now substantially all firms in the United States operating 26 or more units are included in the panel and in 68 sample areas substantially all firms operating 11 to 25 establishments are covered.

GOVERNMENTS STATISTICS. Current reporting in this field was maintained without material change, except for some further improvement in timeliness. Altogether, 17 recurrent publications were issued. These provide annual data on finances of each of the 48 States and the 397 cities of over 25,000; annual national totals of governmental revenue and debt;

quarterly Nation-wide totals and annual State-by-State totals on public employment; and comparative figures on employment of State governments and the larger city governments.

POPULATION STATISTICS. The Bureau has continued its program of preparing estimates of the total population and of basic demographic characteristics for the United States and its major geographic parts. Various reports have been released which brought up to date, or revised, the annual series of estimates regularly issued. Estimates based on the final 1950 census count were released for the months following the census.

In addition to these published reports, a considerable number of unpublished estimates and forecasts were prepared for, and made available to, governmental agencies concerned with manpower and defense, and to various private agencies.

At the request of the Bureau of Labor Standards of the Department of Labor, special inquiries were made in connection with the Current Population Survey in August and in October 1950 to determine the extent of employment among children between the ages of 10 and 13 years. In September, the Federal Security Agency sponsored a study to determine the extent to which persons 14 to 64 years of age were unable to work or perform their usual duties because of some temporary or permanent illness or disability. Information on farm wage workers was obtained in December for the Bureau of Agricultural Economics, in part to provide a basis for estimating the number of such workers who would be covered under the amended social-security legislation. Similarly, the Bureau of Old-Age and Survivors Insurance sponsored a study in June 1951 to determine the extent to which workers in various industries are covered by social security on their present jobs, and the number and characteristics of domestic-service workers brought under coverage by recent amendments.

ADMINISTRATION AND SERVICES

FOREIGN ASSISTANCE ACTIVITIES. Under the Technical Cooperation Program (Point IV) of the Department of State, the Bureau in cooperation with other statistical agencies of the United States Government provides assistance to foreign governments in the improvement of their census and statistical services.

One phase of the program—training foreign technicians in the United States—began in 1947. Since that time approximately 250 foreign technicians representing 41 foreign countries have received training at the Bureau. Most of these trainees are taking an active part in directing the statistical programs of their respective countries.

Another phase of the technical assistance program of the Bureau of the Census relates to the special consultation service available upon request to foreign governments. Census technicians, including statisticians, geographers, economists, and demographers, are detailed as consultants to census

and other statistical agencies of foreign countries. At the end of the year, the Bureau of the Census had consultants in Ecuador, Costa Rica, Honduras, and El Salvador.

In addition to the consultation and training activities already mentioned, the Bureau of the Census also exchanges statistical publications and related materials with more than 200 statistical agencies in 74 foreign countries. Consultation service is also provided to casual foreign visitors. During 1951 the Bureau of the Census was host to 191 foreign visitors representing 49 foreign countries.

PERSONAL CENSUS RECORDS. The number of applications received for personal information from the census records increased somewhat during the year. A total of 118,995 cases were handled, and 116,221 reports of searches were sent out, including 11,303 reopened cases. A total of 181,864 pieces of mail was received in connection with this service.

MACHINE TABULATION. During the past year the Machine Tabulation organization reached the peak of its 10-year cycle. Almost 3,000 technicians and operating personnel were hired and trained to operate about 2,000 units of high speed electromechanical equipment.

Measured in terms of card passes (a card pass is the passage of a punched card once through a machine) the work load reached a level of 4 billion units. About 92 percent of this work load was connected with regular census operations, while the remaining 8 percent involved special projects.

The past year also saw experimental models that had been developed by or in cooperation with the Bureau become line production machines. Included among these are multicolumn sorters, engineering changes in census unit tabulators, special purpose copy-holders, and other devices.

On March 31 delivery was accepted of the Univac system, the high speed electronic tabulating equipment especially designed for census use. Its acquisition culminated a procurement program initiated in 1946. Use of this equipment by the Bureau represents the first application, anywhere in the world, of such electronic calculating equipment to problems of organization and classification of large masses of statistical observations.

The equipment was put to work in the Census of Population. Many aspects of its performance were extremely gratifying, but as was to be expected in a new and revolutionary application, certain elements of the system demonstrated weaknesses, and a period of eliminating problems is ahead. In addition, there is much to learn about making efficient use of this new equipment. Experience and the use of electronic tabulating equipment of this type will no doubt represent as great a forward stride in census techniques as was the invention of the punch card method at Census over half a century ago.

PERSONNEL. The challenge of the year was the acquisition of manpower in a short labor market and the effective conservation and utilization of that manpower.

On June 30, 1951, the Bureau had 6,871 employees (including 793 part-time) of whom 4,173 (including 32 part-time) were employed on Seventeenth Decennial Census activity. These figures contrast sharply with the highest end-of-the-month employment figure for the year, reported for August 1950, when there were 12,242 employees (including 2,969 part-time) of whom 9,549 (including 2,169 part-time) were employed on Seventeenth Decennial Census activity.

The large fluctuations in employment are indicative of personnel problems encountered during the year. Building the Philadelphia Decennial Tabulation Office staff from 490 employees at the beginning of the year to over 3,400 at the peak of activity there in November 1950, and subsequently reducing the staff to 29 employees as of the end of the fiscal year was in itself a major accomplishment.

FINANCE. The sum obligated by the Bureau during the past fiscal year amounted to \$37,000,000 of which 72 percent was for the operations of the Seventeenth Decennial Census. Of the total, about \$2,000,000 was obligated from working funds or trust funds, involving work done by the Bureau for other Federal agencies or others.

CIVIL AERONAUTICS ADMINISTRATION

Good progress was made during the fiscal year 1951 on all major programs of the Civil Aeronautics Administration, with special emphasis being placed on those bearing on national defense.

FEDERAL AIRWAYS FACILITIES

Expanded operations by both civil and military users of air space, combined with renewed national defense emphasis, increased demands for the development, establishment, relocation, and operation of Federal airways facilities everywhere. Efforts to satisfy these increased demands included (1) providing technical assistance to civilian, governmental, and foreign agencies concerned with aviation; (2) conducting training programs in which United States and foreign technicians were instructed in the maintenance and operation of existing, improved, and new air navigation and traffic control equipment and facilities; and (3) acceleration of projects essential to the implementation of a common system of air traffic control and navigation.

Security control positions were established at 10 air route traffic control centers to assist the Air Defense Command in the identification of aircraft entering and operating within critical areas. At the request of the Air Force, action was begun during the year to control air navigation aids and aeronautical communications when and if required in the interests of national security.

Substantial progress was made in implementing the traffic control system. Of the more than 400 VOR (very high frequency omnirange) facilities

designed to cover the United States, 305 had been fully commissioned and 11 others were operating on a test basis. Ninety-eight instrument landing systems (ILS) were in operation. Thirteen left-hand single row high intensity light systems were completed at high priority airports and other types of approach light systems were installed throughout the United States for test purposes.

Nine airport surveillance radar (ASR) systems and nine precision approach radar (PAR) facilities were in operation at Boston, New York International, New York LaGuardia, Newark, Washington National, Atlanta, Chicago Midway, Cleveland, and Los Angeles airports. The two types of radar, used together, constitute a "ground controlled approach" system.

The prototype distance measuring equipment (DME) successfully passed all type tests and 10 ground stations have been installed on the Chicago-New York airway for operational testing. Contracts have been awarded for an additional 445 units, with delivery expected in the next fiscal year. Installation of this equipment will further benefit air navigation by providing continuous accurate information as to an aircraft's distance from an airport runway or from the omnirange.

Pre-flight assistance to pilots was provided in over 2 million instances and over 1 million flight plans were handled. A total of 1,433 cases of emergency assistance to aircraft in flight were handled successfully. These involved approximately 2,500 lives and property in excess of \$25,600,000. Airport traffic control towers controlled over 16 million takeoffs and landings and the towers and air route traffic control centers handled approximately 360,000 instrument approaches. Ground-control approaches handled by 9 towers numbered 26,653 and these same locations used radar to monitor 62,534 approaches.

Nonspectacular, but vital to the safety of civil and military aviation, was the continuing task of maintaining the many thousands of complex electronic installations along the 71,859 miles of controlled civil airways.

AIRPORTS

FEDERAL AID AIRPORT PROGRAM. By the end of the fifth fiscal year of the 12-year, \$520,000,000 Federal aid airport program, plans, specifications and legal documents, amounting to \$162.2 million in construction and representing 97 percent of the funds allocated for airport construction during the fiscal years 1947 through 1951, were completed. Only those projects which contributed to the national defense were programmed during the year. During the fiscal year there were 574 grant agreements entered into for a total of \$39.7 million and 901 projects were under construction, of which 491 were completed.

The Office of Airports continued its representation on the Working Group of the Air Coordinating Committee's Airport Use Panel which is responsible generally for making advisory recommendations to the ACC

regarding policies involving coordination between the military and civil agencies on airport matters. It and its predecessor, the Airport Use Committee, have conducted public hearings at 11 communities for the purpose of resolving military and civil airport problems, especially those of joint military and civil use.

The Office of Airports continued to maintain facility records on all airports in the country for the use of military and civilian interests. Its airport engineers furnished extensive services to the military in the many problems of airport construction and it supplied the military with information on the condition of facilities and the rights of the military to use airports constructed under the several Federal airport programs.

WASHINGTON NATIONAL AIRPORT. The number of scheduled airline passengers enplaning and deplaning at the CAA-operated airport reached a record high of 2,083,982. This is an increase of 671,728 over the previous fiscal year.

The south extension to the terminal building was placed in operation in January of 1951. Consisting of approximately 73,000 square feet of space, covering three floors, it adds greatly to the comfort and convenience of all who use the airport.

WASHINGTON SUPPLEMENTAL AIRPORT. The need for supplemental airport facilities to serve Washington was met by the passage of Public Law 762 of the Eighty-first Congress, approved September 7, 1950. This law authorized construction of a new airport and an appropriation of \$14,000,000 to cover the cost of initial development. An actual appropriation of \$1,000,000 was made for planning purposes and land acquisition.

During the fiscal year detailed site surveys were undertaken. A site comprising approximately 4,200 acres was selected south and west of Burke, Va., and condemnation proceedings were filed against the property on June 15, 1951.

SAFETY

Safety programs to insure compliance with prescribed safety standards and to encourage safe practices made progress during the year. Improved maintenance and training practices of the scheduled airlines were emphasized and special inspections were conducted to raise maintenance standards.

The program to improve inspection methods and regulations for irregular air carrier operations resulted in better safety records for these operators; there were no fatal accidents in this field during the fiscal year.

The preventive maintenance program continued. Studies of aircraft malfunctionings, defects, and accidents were intensified and improved reporting systems devised to prevent unsafe operations. Alert bulletins were adopted to provide information on hazardous conditions reported.

Distinct progress was made in the study of crash fire problems through full-scale crash fire tests under the auspices of the National Advisory Committee for Aeronautics Fire Subcommittee on which CAA is represented.

A simplified method of analysis of vibration in aircraft assemblies was devised and released for use by the industry.

Regulations for certification and modification of aircraft used in industrial aviation were adopted. They provide for greater freedom in development, modification, and use of equipment.

The Office of Aviation Safety assumed major responsibility for type certification and continuous determination of conformity and acceptability of "off-the-shelf" aeronautical products procured by the military. CAA assumed procurement responsibility for 31 contracts.

Major type certification projects during the year included the Douglas DC-6A and DC-6B models, and the first roadable type aircraft, the Fulton Airphibian. Type certification of the CAA-sponsored agricultural type aircraft, AG-1, neared completion.

Discussion was carried on with aircraft manufacturers concerning turbine type engines which they are considering for use in civil transport aircraft. One civil transport aircraft has been equipped with a turbine-propeller powerplant and is flying on an experimental basis. Twenty-four new engine models ranging in power from 90 to 3,500 horsepower were approved and 45 new propellers plus a number of associated accessories were type certificated and approved.

The most outstanding accomplishment in relation to type certification was that which provided for appropriate Washington office participation in the type certification of aircraft, giving the industry direct access to the Washington office and improving coordination.

The way was cleared for qualified manufacturers to accomplish type, production, and airworthiness certification of small aircraft, and the necessary procedure and regulations are expected to be issued early in fiscal 1952.

A project was started to demonstrate safe recovery from stalls by a method which results in the least loss of altitude.

A procedure for the issuance of airman identification cards was put into effect on April 15, 1951.

Aviation safety has led in collaborative studies on emergency evacuation of aircraft.

Progress was made toward improving voice communication phraseology in collaboration with the Air Force.

Studies made at the Aeronautical Center on the effects of windblast from explosive decompression on crew and passengers have served aircraft manufacturers and operators both in the United States and in friendly foreign countries.

A total of 2,695 reports of violations of the Civil Air Regulations was received during the year and 2,788 enforcement cases, including carry-overs, were handled. The General Counsel's Office prepared the final draft and assisted in obtaining acceptance by the National Association of State Avia-

tion Officials of a policy which, when implemented, should improve air safety by providing a proper place for the States in the enforcement of air safety rules.

RESEARCH AND DEVELOPMENT

At the Technical Development and Evaluation Center at Indianapolis, fire testing of XR60-1 and XB-45 engine installations was completed. These tests provided design requirements for fire detecting and extinguishing systems and established correct crew procedures in the event of fire in flight.

A high-rate discharge fire-extinguishing system, representing simplification and weight saving over previously used systems, together with a 60 percent reduction of the agent required, was developed and is undergoing service testing by the Department of the Navy.

A bladder cell type fuel tank which withstands simulated crash tests without rupturing was developed.

A miniature omnirange, suitable for installation on an airport as a terminal aid, was also developed and successfully tested at a number of airports.

Substantial progress was made in developing instruments which give the pilot pictorial information for use of new airway aids.

Flight assistance service demonstrations given during the year in most of the CAA regions to acquaint private pilots with facilities and services available by the various Government agencies to aid in aerial navigation were widely attended.

Work on the agricultural airplane, AG-1 (primarily financed by CAA), which was completed and test flown in December of 1950, continued. The airplane has been demonstrated over much of the United States and scores of aerial applicator pilots have flown it for evaluation purposes. The second phase of the program, the design, construction, and testing of the dispensing equipment, will be completed without cost to CAA at Texas Agricultural and Mechanical College.

All of the CAA regions have held one or more agricultural aviation conferences for the purpose of educating agriculture aviation pilots, operators, and farmers on the safe and efficient use of chemicals in agricultural aviation.

Assistance was given to the Federal Civil Defense Administration in formulating plans for the use of civil aircraft in civil defense. In cooperation with FCDA and the National Association of State Aviation Officials, a State Plan for Civil Aviation Mobilization and Civil Defense, was prepared and distributed. A draft of civil aviation search and rescue plans for the United States was prepared and distributed to all State aviation officials.

A prototype aircraft testing program, designed to help the United States retain supremacy in the transport aircraft field, was begun during the year

in accordance with congressional authorization. An advisory committee of Government, industry, and labor representatives was created to assist the CAA in carrying out this program. The committee has drawn up general specifications for various types of advanced transport aircraft, and has completed plans for the simulated airline operation of available jet (B-45) aircraft.

At the request of State and local school authorities, CAA aviation education advisors assisted with aviation education programs in the 48 States, the District of Columbia, and the Territory of Alaska. Information for aviation education programs was sent, on request, to England, Sweden, Mexico, Japan, New Zealand, Greece, Switzerland, India, South Africa, and Australia.

INFORMATION SERVICES

The more than 12,000 letters received by the Inquiry Branch during the year indicate the widespread interest of the public and the aviation industry in the informational material prepared by the Office of Aviation Information.

To assist the defense effort, the office undertook such activities as the publicizing to pilots of procedures for flight in air defense identification zones and of the importance of avoiding atomic energy prohibited areas. It also assisted in disseminating throughout the aviation industry information on methods of obtaining equipment under the DO (Defense Order) and CMP (Controlled Materials) programs.

Introduction of new technical devices, particularly those which are part of the common civil-military air navigation and traffic control system, required special supporting efforts by the Office of Aviation Information. These included preparation of operating models of the omnirange, radar, and the instrument landing system, first shown at the International Aeronautical Salon in Paris near the end of the fiscal year to promote a uniform world-wide system based on United States methods.

INTERNATIONAL ACTIVITIES

In 1951 the CAA program of inspection and service to United States flag carriers in their international operations was continued and strengthened. Eleven United States scheduled flag carriers serve 152 foreign points on all continents of the world and operate 232,195 miles of international routes with 540 aircraft. In addition, there are 64 United States irregular carriers, operating 171 aircraft.

The international region provided major round-the-clock assistance to air carriers operating in the trans-Pacific airlift under contract to the military services. This assistance was an important factor in the carriers' record of no accidents, fatal or nonfatal.

The 12-month period witnessed CAA approval of Pan American World Airways' radiotelephone air/ground operation on its North Atlantic and

Pacific routes, rounding out a long-term project for conversion from radiotelegraph to radiotelephone communications. Pan American now operates around the world using voice—one of the most significant achievements in the 1950–51 communications program.

Progress in international implementation of the United States-developed common system of air navigation and traffic control was indicated by the following: More than 30 instrument landing system installations are now in operation in the European area; VHF omniranges (VOR) have been commissioned at London and Wales; DME (distance measuring equipment) is in operation at London and Paris, and 1 installation is being loaned the Italian Government for Rome; the Far Eastern Air Force (Tokyo) plans VOR's for installation in that country; the Lorenz Co. (Berlin) has contracts for 8 military VOR installations in Germany. Necessary liaison was conducted with the Department of State and ECA to insure cooperation and implementation by those groups.

A three-man mission traffic control survey in Japan was completed under international region sponsorship, resulting in safer and more efficient use of Japanese airspace by civil and military aircraft. Assistance was provided to the Office of the Supreme Commander, Allied Powers in Japan, in preliminary drafting of policies and plans for the development of an internal airline for Japan.

Technical aviation assistance under economic and military aid programs was furnished to 11 foreign countries, increasing the technical proficiency and financial health of air transportation in these countries and contributing to Point 4 and ECA program objective of economic development.

Ninety-six civil aviation officials from 35 countries visited CAA offices for technical discussions and demonstrations of United States equipment and procedures and 88 high-level employees of other governments or civil aviation enterprises came to CAA for training programs under ECA, Department of Defense and Department of State sponsored programs.

CAA assisted in the simplification and standardization of aircraft entry and clearance procedures and requirements. United States air carriers have informally reported savings of millions of dollars in terms of reduced manpower needs, simplified documentation, and greater use of aircraft as a result. CAA assisted in working out a simplified procedure for flight plans of flights between Canada and the United States.

AVIATION DEFENSE REQUIREMENTS

The Office of Aviation Defense Requirements, established on January 21, 1951, made real progress in obtaining recognition by the Defense Production Administration and the National Production Authority of the essential nature of civil aviation in general and of the material requirements of the four major civil aviation programs—air carrier aircraft, noncarrier aircraft, civil airports, and Federal Airways and supporting units. Program sched-

ules were developed and DO (Defense Order) rating authorizations issued to manufacturers to permit the production of 327 carrier type airplanes from July 1951 through June 1953.

Arrangements were made with NPA and the Munitions Board to permit purchasing agents of the air carriers to apply DO ratings to their purchase orders for maintenance, repair, and operating materials.

A program designed to provide materials for production of noncarrier aircraft was approved by the Air Coordinating Committee and DPA. Later action established material requirements for the noncarrier production program at 3,500 planes for 1952.

As a result of the rating programs authorized and close coordination with NPA on requests for spot assistance, the materials requirements for all phases of civil aviation were adequately covered during the last half of the fiscal year, and groundwork laid for continued recognition of these requirements after July 1, 1951, when the Controlled Materials Plan became effective.

During fiscal 1951, the CAA operated aircraft for official purposes a total of 54,633 hours. Of this total, 28,735 hours were flown by the CAA-owned fleet of aircraft and the remaining 25,898 hours in rented aircraft. A study of the use of official CAA vehicles resulted in the reduction of CAA's passenger car fleet by 57.

COAST AND GEODETIC SURVEY

The Coast and Geodetic Survey is responsible for surveying and charting the coastal waters of the United States, its Territories and possessions; for making geodetic control surveys in the interior; and for performing certain collateral activities for the promotion of commerce, for the development of our natural resources, and for aid in the national defense.

Military operations in the Far East during the fiscal year brought new demands for the Survey's products from the armed services and for acceleration of our mapping program in areas of strategic importance, particularly Alaska. A special agreement was entered into between the Secretary of Commerce and the Secretary of the Army whereby the Coast and Geodetic Survey will conduct all basic geodetic surveys needed by the Department of Defense.

HYDROGRAPHY AND TOPOGRAPHY

Sixteen ships and two shore-based parties operated along the Atlantic, Gulf, and Pacific coasts, and in Alaska, making surveys and collecting basic data for new nautical charts and for modernizing existing ones. High priority was given the work in Alaska. Surveys were extended in southeastern Alaska, along the south coast of the Alaska Peninsula, in the eastern Aleutians, in the Bering Sea, and along the Arctic coast. The electronic position indicator, developed in the Survey for locating a survey vessel's position in offshore hydrographic surveying, was used in Alaska for the

first time. This device will have a significant effect on the accuracy of surveys in the extensive Bering Sea area, where fog abounds for a good part of the working season.

Aerial photographs, taken primarily with the Survey's nine-lens camera, furnished basic data for compiling topographic maps by photogrammetric methods. Photographs were taken and photogrammetric field surveys were made of coastal areas along the Atlantic, Gulf, Pacific, and Alaska coasts. In furtherance of the airport obstruction plan program, photographs were taken of 149 airports in the United States, and 5 airport parties completed original or revision surveys of 75 airports. Nineteen new airport obstruction plans were published during the year, bringing the number available to 382.

GEODESY, TIDES, AND MAGNETISM

The basic network of horizontal and vertical control was further extended during the year for use in mapping and engineering. Major activities were in western Alaska and in various priority areas in the United States for the Department of Defense, the United States Geological Survey, and other Federal agencies, and for various State and local entities.

The adjustment of special earthquake surveys in southern California was completed during the year. These surveys are made periodically to determine any movement of triangulation stations which may indicate seismic activity. Although no extreme horizontal displacement was disclosed, there is evidence of a movement in a northwest direction relative to the earthquake fault line. The gravimetric deflection project was completed. Indications are that the gravimetric method can now be applied in the establishment of continental datums and the determination of a more accurate figure of the earth.

The tidal program continued to furnish basic data for hydrographic operations, for the predictions of tides and currents, and for numerous other engineering and scientific uses. In furtherance of this program, 94 standard-type tide stations were kept in operation during the year and continuous records of the rise and fall of the tide obtained. Short series were also obtained from 83 portable-type stations. Additional tidal data were received through cooperative arrangements with other countries, particularly in Central and South America. Special tide and current studies were made for 10 areas in the interest of national defense.

A comprehensive current survey of the Aleutian Islands passes was in progress during the year, and much valuable information of importance to navigation was obtained in this exposed area. Other important current surveys were conducted in Tongass Narrows, Alaska, and in Charleston Harbor, S. C.

The program of collecting data on temperature and density of sea water at standard-type tide stations was continued; data were obtained from stations in Central and South America.

The magnetic survey of the United States was carried forward to provide additional information for navigation, for surveyors and engineers using compasses, and for various scientific purposes. Observations were made at 67 new stations and at 7 observatories. A new observatory was opened during the year at Houston, Tex., in cooperation with the University of Houston.

The year witnessed the first important work of magnetic field surveying using an airborne magnetometer. Thousands of miles of continuous magnetic profiles were obtained on flight lines in the United States and adjacent ocean areas. This high-altitude work will improve the magnetic data shown on aeronautical charts and will provide important scientific and technical information.

SEISMOLOGY

The seismologic program of the Survey is broadly directed toward earthquake mapping and engineering seismology. In furtherance of the mapping program, seismographs were operated by the Survey at 7 stations and cooperatively at 14 other stations. Comprehensive exchange of data was carried out with many foreign and domestic sources—16,328 messages were received and the locations of 598 earthquakes determined. The Assam earthquake of August 15, 1950, one of the greatest of modern times, was pinpointed within 5 hours after its occurrence.

As part of its engineering seismology program, 53 strong-motion seismographs were operated in the western areas for recording ground motions of destructive earthquakes. The major United States activity of the year occurred in the Imperial Valley, Calif., on July 26 to 29.

The operational system for warning the Hawaiian Islands against destructive seismic sea waves in the Pacific Ocean was continued. There are now 16 tide stations and 9 seismograph stations in the system. Several submarine earthquakes were located during the year, but no destructive sea waves resulted and public alerts were unnecessary.

NAUTICAL AND AERONAUTICAL CHARTS

Military action in Korea brought a greatly increased demand for nautical and aeronautical charts from the Armed Forces. Over 28,500,000 charts of all categories were distributed during the year, an increase of over 2,000,000 from the previous year and an all-time high.

A total of 917 nautical charts, at various scales, was on issue at the end of the fiscal year. There were 2,400,000 copies distributed, requiring over 11,000,000 hand corrections to bring the charts up to date for essential information. Considerable progress was made in reconstructing and modernizing nautical charts to make them more responsive to the needs of present-day navigation. Three new charts of the Gulf Intracoastal Waterway series were published, and five were in various stages of comple-

tion. Of the scheduled 33 charts of the Waterway, 21 are now available for distribution.

Twenty-six million aeronautical charts were printed during the year for civil and military use. There were 1,028 different charts available at the end of the year to meet the various needs of the aviator. These comprise standard and auxiliary charts, instrument approach and landing charts, and radio facility charts. A new supplemental series of radio facility charts was begun during the year. These portray airways controlled by the VOR (very high frequency omnidirectional range) system. In this series high-frequency data are accentuated and low-frequency data subdued. Another series of charts (AL-VOR) initiated during the year is designed for making final instrument approaches and landings at airfields equipped with VOR landing aids. The series of seven route charts of the United States was completed. These are designed to meet the requirements of high-speed air carriers operating at high altitudes.

TECHNICAL IMPROVEMENTS AND COOPERATION

The Survey's program of research and development to improve its instruments, equipment, and operating techniques was advanced during the year. Significant improvements were the design of a new standard tide gage and a pressure gage, the construction of a new ship electronic position indicator for use in Alaska, and the design and construction of an aluminum power launch for inshore hydrographic surveys. In addition, the design of a special lightweight shoran unit was begun for installation in a buoy or for temporary installation on a beach. Several improvements, designed to relieve production bottlenecks, were made in chart-reproduction processes. An intensive program was also initiated to improve the legibility of airport landing charts by omitting superfluous information. The completion of a visual magnetograph will provide a valuable contribution to the study of the earth's geomagnetic field.

Cooperation was extended during the year to a number of national agencies (Federal, State, and local), and to foreign governments and international organizations through new and existing arrangements. Under provisions of the Point 4 program and other acts, 27 trainees, primarily from Latin-American countries, and 14 visitors from 11 countries received instruction in surveying and charting methods. In addition, technicians from Canada and five European countries visited the Survey to observe its lithographic techniques. A technical mission was sent to Liberia to determine existing conditions and priority of requirements for surveying and mapping that country under the Point 4 program.

PERSONNEL CHANGES

The Department notes with regret the retirement from active service on May 31, 1951, of Rear Adm. K. T. Adams, assistant director of the Coast and Geodetic Survey. Admiral Adams has been a member of the Survey since 1912 and has served as assistant director since 1949. On June 1, 1951,

he was succeeded as assistant director by Rear Adm. Robert W. Knox. Mr. Joseph M. Hart was appointed Chief of the Division of Personnel on January 2, 1951, pursuant to the creation of this division during the previous fiscal year.

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

Expansion and acceleration of the regular flow of OBE material on economic trends, the gross national product, national income, and the balance of international payments have been necessary to provide the advisory services requested in the past year of stepped-up defense mobilization.

The national income data provide the basic economic measures required for calculating the impact of military and related programs upon our productive resources, as well as the inflationary pressures being engendered in the economy as it meets the needs for expansion and diversion of a major part of output to defense. Military considerations have swelled the previously high volume of requests to OBE for basic economic information; for information on the nature and effect of new Government programs, and on the effects upon business and the consumer of materials shortages, of increased taxation, and credit limitations; for special presentations of data on international transactions; and for summary facts on the extent, nature, and destination of Federal aid to foreign governments.

The Office of Business Economics, through careful use of its resources and the development or revision of data and analyses, has met virtually all of the demands registered by business and Government agencies. At the same time it has collected, compiled, and released regularly the statistical materials for which it is responsible, while also conducting a number of special surveys in an effort to meet new problems requiring quantitative evaluation for their solution.

Completion of the 1951 National Income Supplement to the Survey of Current Business during the past fiscal year enabled OBE to present in one volume the results of 20 years' pioneering research in the development of the national accounts. For the first time, a complete description of the sources and methods used in the establishment of these fundamental statistical measures has been condensed for succinct presentation within the covers of a single volume. The resulting publication also contains all the detailed national accounts themselves—in 48 tables—and a review of economic developments since 1929.

This latest OBE contribution to economic knowledge represents a significant step toward one of our objectives—to provide a unified statistical picture of the national economy. In less apparent ways, however, the Office has during the past year served Congress and Government agencies—especially the defense agencies like the Office of Defense Mobilization, Economic Stabilization Agency, National Production Authority, and the Defense Production Administration—by providing special economic materials and analyses stemming from its basic functions, and by offering guidance in the development and administration of programs for economic controls.

At the request of the United States Air Force, which outlined its needs and provided funds for a continuing investigation being coordinated through the Bureau of the Budget, the Office of Business Economics has undertaken to study the adequacy of industrial capacity in selected fields of prime importance in defense programs.

CURRENT BUSINESS ANALYSIS

Heightened activity in war-supporting industries, and vastly increased Government spending, have caused a continuing rise in the rate of national economic activity to be evidenced in the economic indicators regularly presented and analyzed in OBE's Survey of Current Business. This regular monthly magazine continues, therefore, to be used extensively in the United States and abroad as a comprehensive reference for up-to-date information and fundamental analyses relating to all phases of American business activity. Indicative of the wide range of economic materials currently issued by the Office of Business Economics are the titles of some of the articles published in the Survey of Current Business thus far in 1951:

- Business Investment and Sales Expectations in 1951.
- Trend of Inventories in the Mobilization Period.
- Recent Trends in Retail Trade.
- Current Financial Position of Corporations.
- Estimates of Gross National Product in Constant Dollars, 1929–1949.
- Private United States Direct Investments Abroad.
- International Travel in 1950.
- Foreign Aid by the United States Government in Calendar Year 1950.

During June the Office of Business Economics brought to a conclusion its very extensive survey of the earnings of physicians, another in the series which previously had covered the incomes of lawyers and dentists. Carried on with the assistance of the American Medical Association, this survey was the most extensive one of its kind, with an almost unprecedented response rate from members of the profession. Demand for the published results was so large that thousands of reprints were needed to meet the needs of local medical societies. The American Medical Association itself ordered 15,000 copies.

Continuing the series of statistical supplements which have been issued biennially since 1932, OBE also carried to completion Business Statistics, the 1951 statistical supplement to the Survey of Current Business. Here the 2,600 business indicators appearing in each monthly issue of the magazine are rounded up in a review covering more than 300 pages, to provide a comprehensive record for back years and put more recent data in perspective. The latest volume in this long series shows monthly data from January 1947 through December 1950, with annual averages back to 1935.

A feature of Business Statistics is its explanatory material and descriptions, to furnish the reader with information essential to proper use of the data. For example, definitions of the statistical units employed, methods by which the data are collected, and some idea of the adequacy of statistical samples used, are furnished for each business indicator.

In the field of regional business indexes—where OBE annually makes an important contribution through its data on personal income by States and regions—a thoroughgoing examination of differences in regional economic progress as between the regions was prepared for publication under the title, "Regional Trends in the United States Economy." In this review of each region's business trends from 1929 to 1950, the place of the area in the national ranking is shown explicitly, along with the factors contributing to its economic progress and the changes which have governed their development.

FOREIGN TRANSACTIONS

Security regulations necessitated limiting some of the OBE published data on specific Government transactions abroad, but most of the statistics were continued currently in the quarterly reports which extend back over the past decade. Expansion of international programs since the end of World War II has vastly increased the size and complexity of these accounts. Currently, for example, the Military Defense Assistance Program is coming to the fore, although a heavy volume of transactions continues under the European Recovery Program. For the determination of the extent of appropriations desirable for these and many other programs abroad, the resources of OBE are relied upon heavily by congressional committees.

At the same time the economic pulse of foreign countries is regularly observable in the balance of international payments reports issued quarterly by OBE.

Under the Point 4 program, a census of American holdings of private direct investments abroad was undertaken. A current record of present American investments is necessary as groundwork for any program for the encouragement of further private investment in underdeveloped countries. Data on American expenditures and receipts abroad have been regularly compiled and presented in the balance of payments reports; the collection, compilation, and analysis of the investment census results constitute a formidable additional job.

The Office of Business Economics, under provisions of the Act of International Development (Pub. Law 535, 81st Cong.) gives training to selected foreign government and central bank personnel in the preparation of national income and balance of payments estimates. The program is primarily to assist the participating countries in the preparation of these national economic measures for policy guidance.

The system of national economic accounts taught to trainees is designed to provide a clear, integrated, comprehensive statistical picture of the workings of a national economy. As a result of the training, participants on return to their countries adapt or make use of the knowledge so gained to promote a more uniform and accurate exchange of information among nations. In addition, the program tends to foster a closer relationship between the United States and the participating foreign countries.

During the fiscal year 1951, 38 trainees from 25 different countries received instruction.

Office of Industry and Commerce

In September 1950 the National Production Authority was authorized in the Department of Commerce. The industry divisions of the Office of Industry and Commerce were transferred for an indefinite period to the National Production Authority and became the nucleus of industrial operations in the NPA. These operations include the actual allocation of critical materials in short supply. The Marketing Division and the Small Business Division of the Office of Industry and Commerce were also transferred to the NPA and became the Office of Civilian Requirements and the Office of Small Business, respectively, in the NPA. These transfers provided the NPA with personnel trained and experienced in industrial and trade matters, which greatly accelerated the development and execution of these control operations.

The three remaining divisions of the Office of Industry and Commerce are contributing to the national defense program, and are also continuing their normal functions.

AREA DEVELOPMENT DIVISION

Local areas and states were confronted with many problems of economic development in fiscal 1951; these were occasioned by the national concern with defense mobilization. Hundreds of communities organized to expand their economic base and to utilize their resources for defense production. Often their effort took the form of sending a local delegation to Washington with the mistaken impression that they could bring back a defense plant. In Washington, these groups usually met with understandable frustration, and returned home to the communities disillusioned.

Early in the defense effort the Area Development Division recognized the need to help guide the energies of these civic groups into worth-while programs of community economic development which would at the same time serve defense needs. In cooperation with state development and resources commissions, the Division provided consultation and technical guidance along these lines. For example, the publication, *Community Industrial Development in the Defense Period*, set forth in simple language what influence the Federal Government has on industrial location, what positive steps a community can take to help existing industry grow through defense production and to get new industry established in accordance with the resources of an area.

The state development and resources agencies for which the Division acts as the Federal liaison also sought assistance in readapting their programs to defense exigencies. A week-long meeting was conducted by the Division at which representatives of Federal defense programs explored ways and means by which the State and Federal programs could be geared into each other for efficiency and mutual benefit. The results of this conference were reported in a publication called *The States and National Defense*. In follow-up of this conference, the Division arranged a number of meetings for the Defense Mobilization Committee, representing the various state development and resources commissions, with congressional committees and executive agencies. These meetings were to further cooperation at the state level on programs to aid defense production, small business, and economic development generally.

The Federal Government has large construction programs in the river and water field. These programs have the ultimate purpose of developing river basin areas, yet there are no studies of the industrial and business opportunities for investment which are made available by these resource developments. The Division in a modest way has been attempting to overcome this deficiency, particularly in connection with the Arkansas-White-Red inter-agency comprehensive study which it is hoped will point the way for similar work in other basins.

The Division's activities also included services to industry in plant location, participation in the work underlying the report of the President's

Water Resources Policy Commission, and preparation of guides and materials helpful to groups concerned with the economic development of the domestic areas of the United States.

COMMODITY STANDARDS DIVISION

The Commodity Standards Division was transferred from the National Bureau of Standards to the Office of Industry and Commerce at the beginning of the fiscal year. It continued without interruption its principal function of cooperation with industry in the voluntary establishment of Simplified Practice Recommendations and Commercial Standards at the specific request of the industries concerned.

During the year, 19 Commercial Standards and 14 Simplified Practice Recommendations were established, and the manuscripts prepared for printing. Twenty-five Commercial Standards and 12 Simplified Practice Recommendations were issued as printed pamphlets. In addition, 46 Commercial Standards and 26 Simplified Practice Recommendations were under development. Because of urgent military needs for a standard for gage blanks, a 120-page Commercial Standard on that subject was developed by the Division and printed by the Department of Defense.

In cooperation with the National Bureau of Standards and the Bureau of Human Nutrition and Home Economics of the United States Department of Agriculture, an extensive and detailed study of apparel sizing was conducted at the request of the apparel industry. The study consisted of a statistical analysis of body measurements made by the Department of Agriculture, and correlation of these data with industry practice.

Members of the Division served as chairmen or members on a number of technical committees of the Federal Specifications Board and the Department of Defense, and on various committees of technical societies and trade associations outside of Government.

The Division provides a central source of information on Commodity Standards for Federal, State, and municipal governments, as well as private industry. The facilities of the Division were used extensively by the Economic Cooperation Administration, and also by the Office of International Trade and by conservation specialists of the National Production Authority. Foreign industries, prompted by the ECA, requested and obtained frequent information and advice. Foreign visitors were given information and instruction on the subject of standards. Copies of numerous Commercial Standards and Simplified Practice Recommendations were supplied to the Department of Defense for use in procurement and testing of supplies.

TRADE ASSOCIATION DIVISION

The Trade Association Division centered its activities on services pertaining to the National Defense Program. It has long been the center of information in the Federal Government on all types of nonprofit organiza-

tions in the business picture. These are located in several thousand cities throughout the 48 States. They are the spark plugs of effective Government-business cooperation.

The newly created defense agencies and their field offices were constantly furnished with data on the over 15,000 trade associations, professional societies, chambers of commerce, and related groups in the United States. The Division assisted in the formation of many coordinating committees with the American Trade Association Executives, the Chamber of Commerce of the United States, the National Association of Manufacturers, and similar federations.

Among the reports prepared were those on potential defense-aid services of associations; summaries of defense agency reports of special interest to associations; a 1951 supplement to the 700-page directory issued in 1950; and a survey of 5,000 community cooperation organizations.

Office of International Trade

The changing international situation necessitated many modifications in the work of the Office of International Trade, which was reshaped to make a maximum contribution to the National Defense Program. Activities not contributing to that program were curtailed. The growth in foreign demand at a time when materials shortages were increasing in the United States led to the tightening of export controls and greatly increased the workload involved in administering the export control program. The security aspects of that program required the detailing of a large number of staff members to the continuous analysis of the trade of all countries of the free world with members of the Soviet bloc.

Also emphasized in the work of OIT were those activities necessary to assist businessmen responsible for the movement of United States exports and for foreign procurement of materials and equipment needed in this country. A much larger volume of information was required to contribute to effective functioning in the defense effort of such Government agencies as the Office of Defense Mobilization, the Department of State, and the Central Intelligence Agency.

EXPORT CONTROLS

The Korean conflict and the increased tempo of economic activity required by the mobilization of the national economy were directly reflected in an intensification of the export control program, for reasons of both security and short supply. Certain basic commodities which had been in free supply in the early months of 1950 tightened under the pressure of increased world-wide demand. To assure the most effective utilization of available resources, it became necessary for the United States to control both export and domestic use of many commodities. In recognition of the importance of export controls to the United States economy, Congress

extended through June 1953 the Export Control Act of 1949. This action reaffirmed the policy of the United States "to use export controls to the extent necessary (a) to protect the domestic economy from the excessive drain of scarce materials and to reduce the inflationary impact of abnormal foreign demand; (b) to further the foreign policy of the United States and to aid in fulfilling its international responsibilities; and (c) to exercise the necessary vigilance over exports from the standpoint of their significance to the national security."

For the guidance of all persons concerned with export regulations and interpretations, the Office of International Trade issued the annual Comprehensive Export Schedule, supplemented by weekly Current Export Bulletins.

SECURITY CONTROLS. On June 28, 1950, a complete embargo was imposed on exports of all goods from the United States to North Korea. Two days later, as a further measure to deny strategic materials to the general area of military activity, all licensing of Positive List commodities to China was halted and on July 20 all outstanding validated licenses to China were revoked. On August 17, the blanket privilege to export small quantities of Positive List items—within prescribed value limits—was revoked to all countries in the Soviet orbit, European and Asiatic (designated as subgroup A). This privilege was later revoked to Hong Kong and Macao.

With the entry of the Chinese Communists into the Korean struggle, OIT not only cut off further shipments to China of the nonsecurity items left uncontrolled after the July 20 action, but suspended all outstanding licenses to Hong Kong and Macao—traditional Chinese feeder areas. Hundreds of cargoes which had already left the United States were ordered to be off-loaded at way points in the Pacific. All in-transit shipments of foreign goods through the United States to subgroup A, Hong Kong, and Macao were made subject to validated license; finally all shipments of any commodity, whether or not on the Positive List, to the entire Soviet bloc were put under direct license control.

In addition to blanket regulations affecting all exports to particular areas, security controls were tightened by requiring a more detailed verification of the use to which certain strategic individual shipments were to be put. Applicants for licenses to ship such commodities to all non-Western Hemisphere destinations were required to submit with their license applications a statement, signed by the ultimate consignee, setting forth complete information on the final destination and end use of the goods proposed for export. Other regulations provided increased responsibilities on the part of carriers, forwarders, and other parties to export transactions to safeguard cargoes against transshipment or diversion to end uses other than those for which the goods were licensed.

SHORT-SUPPLY CONTROLS. Throughout the year, as dictated by the expanding needs of the mobilization effort, the list of commodities controlled for supply reasons continued to expand. The Positive List of Controlled Commodities grew from 1,106 commodity listings (within a total of 667 Bureau of the Census schedule B export classifications) on June 30, 1950, to 1,467 listings (916 schedule B classifications) on June 30, 1951. The volume of license applications rose from about 5,000 to more than 14,000 per week.

As supply shortages intensified, it became necessary to establish export ceilings for large numbers of short-supply items and to coordinate the export control activities with the controls exercised by the agencies established under the Defense Production Act. Thus OIT collected, analyzed, and evaluated foreign requirements for such items, and acted as claimant for the needs of all friendly foreign governments outside the ECA program before the Defense Production Administration, National Production Authority, and other allocating authorities. Export requirements and claimancy functions imposed increasing work loads.

SUPPLY ASSISTANCE. To assure actual shipment of minimum economic and mobilization requirements of friendly foreign governments, export quotas were geared to the developing internal allocation and priority system of the United States.

Special attention was given, as justified, to obtaining priority assistance to assure the export of commodities in short supply essential to the defense program of the countries of the free world and the maintenance of their basic economies, to the increase in production abroad of strategic metals and minerals, to the maintenance of American-made equipment in operation in foreign countries, and to other vital purposes. Special assistance requests had to be supported by full information and were subjected to searching analysis.

EAST-WEST TRADE ACTIVITIES

Closely related to the security export control function have been the activities of the Office of International Trade in the East-West trade field. OIT rendered technical and policy assistance to the agencies of the Government who have discussed with other governments the scope of their security controls. More specifically, OIT actively participated in the work of the Special Committee on East-West Trade of the National Security Council which considered actions to be taken by this Government to implement section 1304, Public Law 843, and later, section 1302, Public Law 45. The Office of International Trade supplied the National Security Council with analyses of the trade, with the Soviet bloc, of those countries receiving economic and financial assistance from the United States. These analyses formed factual bases for the decisions of the National Security Council.

SPECIAL PROGRAMS, SERVICES, CONFERENCES

The Office participated extensively in the third round of multilateral tariff negotiations under the General Agreement on Tariffs and Trade in Torquay, England. This participation included drafting basic studies, taking part in interdepartmental committee meetings prior to the conference, and supplying information to the United States delegation at the conference. OIT personnel assisted in conducting the actual tariff negotiations with 22 countries; agreements were successfully concluded with 17 of these. The Office cooperated in redrafting provisions of several Treaties of Friendship, Commerce and Navigation, reflecting as far as possible the views of American business.

OIT provided United States businessmen with information and advice on opportunities for, and conditions of, making private investment in underdeveloped countries as part of the Point 4 program. Detailed investment guides covering Colombia, India, Liberia, Pakistan, the Philippines, Turkey, the Union of South Africa, and Venezuela were undertaken and partially completed, pending field investigations. Under the Point 4 program, OIT was authorized by the Technical Cooperation Administration to carry out 10 technical assistance projects in various industrial fields. A number of other technical assistance requests from underdeveloped countries are under consideration. Methods of providing technical assistance to small industry in underdeveloped countries were planned and recommended for use. Also, through cooperation with United States railroads, provisions were made for training, in the United States, persons from abroad as junior and senior railroad executives. OIT coordinates the Point 4 programs for the Department of the 10 bureaus which participate in this work.

OIT understook the management of ECA-sponsored foreign technical assistance teams who were here to study American techniques of marketing with particular reference to the common defense program. Also in cooperation with the ECA Technical Assistance Program, OIT marketing specialists attended five foreign fairs to advise foreign producers on techniques for expanding their sales to the United States of materials needed especially for the defense program.

OIT advised American producers and other business interests seeking to locate abroad goods critically needed by our defense economy. Specialized marketing counsel was made available to foreign sources of supply so as to facilitate their contact with American business. Continued study was undertaken of foreign availabilities and of domestic needs; this study is to further the efficient utilization of foreign goods to meet United States requirements. The Department of Defense and business concerns holding military contracts were informed of specific availabilities, in several thousand instances, of essential raw materials and finished products abroad required directly or indirectly in the mobilization program. In addition, specific industrial facilities abroad capable of providing essentials to the Armed

Services were identified, and opportunities for the licensing of United States processes for production abroad were brought to the attention of appropriate business interests.

In connection with the export control program, information on individual foreign concerns was furnished to security intelligence agencies in the Government, to defense agencies, and to those concerned with foreign requirements and procurement. Counseling service on channels of trade for defense, on foreign requirements, and on procurement superseded OIT's regular trade-list functions. Its trade-adjustment activity centered on giving counsel to the Foreign Service and to the principals involved in the mediation of such disputes between firms engaged in foreign trade as would impede emergency requirements and procurement programs or be prejudicial to defense preparations.

OIT continued to operate the British Token Import Program, in which several hundred American firms who made prewar shipments to the United Kingdom are eligible to participate. Under the program, some 200 specified commodities may be imported into the United Kingdom up to a fixed percentage by value of the exporter's prewar shipments. In cooperation with the Department of State, negotiations were conducted with representatives of the United Kingdom and Canada for increased dollar purchasing by the British West Indies.

The Office fulfilled its duties in administration of the China Trade Act. The few American companies still active on the mainland were operating under compulsion of the Chinese communists or were in process of winding up company affairs. Operations of the companies in Hong Kong were necessarily curtailed because of United States export controls. OIT completed the relevant legal and financial work pertaining to 85 annual reports and other documents affecting China Trade Act companies.

OIT was represented on the Interdepartmental Working Group concerned with war-damage legislation, and, at the request of the Department of Defense, analyzed insurance laws and underwriting facilities in foreign countries where defense construction is being undertaken. In cooperation with the Office of Business Economics, a study entitled "U. S. International Re-insurance Transactions of 1949," was completed as part of a design to appraise the position of insurance in the United States balance of international payments.

During the year, OIT staff members consulted with United States foreign trade zone operators, business interests utilizing the zones, and other Government agencies; these consultations related to revision of regulations governing operations within the zones to facilitate their use for manufacturing and exhibiting purposes. OIT's programs in the field of foreign trade zones were strengthened through closer integration of this work with other trade-development activities. The Office conducted a technical assistance mission of European representatives of industry and government on a tour to

all United States zones to study ways in which these zones could be more widely used in developing European trade with the United States.

OIT furnished technical guidance and advice to the First United States International Trade Fair, held in Chicago in August 1950, and placed increased emphasis on promoting foreign participation in United States trade shows, such as the International Food Exposition in Chicago, June 1951.

While OIT continued to promote travel to Europe, added emphasis was given to programs involving Caribbean areas and the Far East which were carried on in cooperation with the Caribbean Interim Tourism Committee and the Economic Commission for Asia and the Far East. Further action on stimulating travel in Latin America has taken the form of following up the results of the Commerce-Pan American Union Mission to South America (February 5–April 23). OIT prepared plans for the formation of an Inter-American Travel Commission.

Throughout the year, OIT continued its participation in various international conferences. United Nations conferences at which the Office was represented included the 11th Session of the Economic and Social Council, held in Geneva in July-August 1950; the seventh session of the Economic Commission for Asia and the Far East, held in Lahore in February 1951; and the fifth session of the Transport and Communications Commission, held in New York in March. Preparatory to these conferences, OIT assisted in formulating the United States position on the various economic problems under consideration.

OIT representatives played an important role in developing the mutual obligations of the United States and other American Republics arising from the defense program. The more important conferences at which these topics were considered were the fourth meeting of Consultation of Ministers of Foreign Affairs of American States, held in Washington, March 26–April 7, and the fourth meeting of the Economic Commission for Latin America (ECLA) of the United Nations, in Mexico City, May 27–June 17.

The Office continued to advise in the formulation of United States financial policy, particularly with respect to those policies affecting international trade. OIT was represented on the United States delegation to the meetings of the International Monetary Fund and the International Bank for Reconstruction and Development in September 1950.

Staff members of OIT, along with other representatives of the Department, participated in the first Joint Import Trade Promotion Conference, held in Paris in November 1950 under the auspices of ECA. The object of this conference was to discuss trade-promotion techniques useful to the Marshall Plan countries in strengthening their balance-of-payments position.

OIT personnel, representing the Department of Commerce, participated as members of the United States delegations to such conferences as those

of the International Wheat Council, in London and Geneva; the International Cotton Council, in Pakistan; and the International Materials Conference, in Washington. OIT also participated in the United States Economic Survey Mission to the Philippines, which made recommendations to the President of the United States on measures designed to enable the Philippines to become self-supporting.

Staff members attended a number of regional conferences of United States diplomatic and consular officers, and visited various United States embassies for the purpose of familiarizing our foreign posts with the new services to business which must be performed incident to our export control and supply assistance programs and to consult with them on United States trade problems in the areas visited. Throughout the year, members of OIT's staff were requested to address numerous United States business groups, including the National Foreign Trade Council, Far East-America Council, Export Managers Club, Textile Bag Manufacturers Association, and chambers of commerce.

INFORMATIONAL SERVICE

In its International Reference Service and Business Information Service publications, and in miscellaneous releases, the Office of International Trade provided the public with information on foreign import and export duties, taxes, and import and exchange controls; economic conditions and the market situation abroad; how to prepare shipments to, and regulations pertaining to the establishment of businesses in, certain countries; and procedures for sending gift packages abroad. A special report on United States foreign trade, 1936-49, monthly reports analyzing our export and import trade, and quarterly and semiannual country export-import studies were issued; owing to the major role of the sterling area in international commerce, a new series of monthly sterling-dollar trade reviews was published. OIT continued to issue *Foreign Commerce Weekly*, the Department's principal medium for disseminating current foreign-trade data; and published the second postwar edition of the *Foreign Commerce Yearbook*, giving basic economic statistics of foreign countries. A large volume of inquiries, especially on trade development, was handled both through correspondence and personal service; articles were prepared for domestic and foreign journals; and broadcasts were made on Voice of America programs.

FOREIGN SERVICE LIAISON

The requirements of the Department of Commerce for reports from the Foreign Service of the United States were reoriented during the year to meet the changed conditions of a period of mobilization. Reporting schedules of all primary units calling upon the Foreign Service were modified with the objective of eliminating all reporting not essential to our programs and of making way for those subjects which had increased in importance. These included foreign requirements for United States goods, procurement

of scarce materials for United States consumption, and the obtaining of data essential to the enforcement of effective export control.

Semiannual reports were eliminated not only in the general economic field but in the transportation and commodity fields, and detailed instructions were developed covering materials requirements reporting. Staffing patterns for the economic and commercial sections of Foreign Service posts were revised accordingly. Formal liaison was established with the intelligence units of all defense agencies for the purpose of obtaining from them all economic information which they might receive from their representatives abroad.

The content of the OIT training courses for Foreign Service personnel was reexamined and revised to meet the changed requirements for economic information which the Commerce Department was placing upon the Foreign Service.

Office of Field Service

With the establishment of the National Production Authority within the Department of Commerce, the Field Service was given authority and responsibility for representing the NPA throughout the United States. To carry out this new assignment effectively the number of field offices was increased from 42 to 105 with a fivefold expansion in personnel. The Field Service kept pace with the growth of the NPA with the result that businessmen affected by NPA policies, regulations, and orders were in a position to deal with the agency on a local basis.

In addition to aiding business in obtaining first-hand information on the NPA program, assistance was rendered in expediting materials required by defense agencies and essential civilian industries. The offices were empowered to pass upon applications to commence construction of certain types of projects, thus expediting administration of the Construction Control Order. Field offices also participated actively in the compliance program of NPA. Facilities were established for prompt handling of inquiries from businessmen on all phases of NPA activities.

Notwithstanding these additional burdens placed upon the field offices, the programs of the Bureau of Foreign and Domestic Commerce and Bureau of the Census were carried out. There was considerable demand for census data and for the material published by the Office of Business Economics. Particular attention was given to problems faced by small-business men arising from dislocations caused by shortages in the metals and chemicals field. A valuable service was rendered under the procurement assistance program; the field offices with the assistance of more than 6,000 official outlets furnished information on requests for bids by the various procurement agencies of the Government and on contracts awarded by those agencies. This program proved to be particularly helpful to those firms which faced difficulties in the production of their peacetime lines.

In the field of foreign trade there was sustained interest in finding foreign

sources of supply for scarce materials and industrial products required by the United States. With the cooperation of the Commercial Intelligence Branch of the Office of International Trade, potential sources were furnished in response to thousands of inquiries received from the field. With the tightening up of export controls the field offices were called upon to work closely with the exporting fraternity and there was a heavy demand throughout the year for export control information. The increased dollar earning capacity of foreign countries brought many inquiries from abroad for American products and the field offices assisted many foreign firms in obtaining agency and purchase connections.

INDUSTRY EVALUATION BOARD

The Industry Evaluation Board is an essential part of the interdepartmental industrial security program for Government and industry. The Board was established in January 1951 pursuant to a Presidential Directive based upon a recommendation of the National Security Council.

The program maintains that it is both unnecessary and impossible to give special security guidance against all hazards, including espionage, sabotage, and other subversive activity, to every industrial facility in the country; but it is imperative for the Federal Government to assume special security responsibility for the relatively few facilities crucial to the manufacture of munitions and essential civilian products. However, before such facilities can be given security assistance they must be identified. Therefore, the Industry Evaluation Board is undertaking the selection of industrial facilities, and their supporting economic resources, which are key to the defense effort. The protection of these relatively few facilities is, in effect, a safeguard for our entire industrial complex, as these are the natural targets for espionage, sabotage, and other subversion. Covert enemy action is not directed broadside against industry, but finely pinpointed toward key targets.

The Board screens industrial resources, identifies key defense facilities by their contributions to the manufacture of munitions or essential civilian products, and reports such findings to the appropriate Federal agencies for security guidance and supervision against such hazards to production as enemy activity, accident, fire, sabotage, espionage, and other subversive activity. It also serves the Secretary of Commerce and other officials and agencies with industrial analyses and recommendations related to the security of national defense economic resources.

The Board consists of representatives of the Departments of Commerce, Defense, and Interior; the Atomic Energy Commission; the National Security Resources Board (Observer); the Defense Production Administration (*ad hoc*); and occasionally other agencies on an *ad hoc* basis. The Department provides the Board with a staff of industrial and other specialists

to ascertain facts and make recommendations upon which the Board will act and without which it cannot function.

The Board's staff, functioning under a Staff Director, who is responsible to the Chairman, is divided into four groups: (1) Machinery and Equipment, (2) Materials, (3) Nonmanufacturing Facilities, and (4) Special Programs.

During the brief period in which the Industry Evaluation Board has been in active operation, it has developed policies, procedures, and formulae for evaluating products, services, and the facilities supplying these. It has formulated methods of analysis and established liaison with those agencies from which the requisite information is received. After these organizational steps had been taken, evaluation analyses were begun; these resulted in the selection and rating of products determined to be of exceptional importance to national defense, and the assignment of ratings to the facilities producing these products. In addition to the evaluation analysis, the Board has collaborated in programs of other agencies on matters involving industrial security.

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 showed a small net profit for the fiscal year ending June 30, 1951. This is the first year since 1938 in which an operating profit has been shown, and this result was achieved because of unusually high revenue earned by the Corporation's railroad section. Waterline transportation segments continue to suffer substantial losses, in spite of the pronounced increase in utilization of the Corporation's floating equipment.

In comparison with fiscal 1950, tonnage transported increased approximately 6 percent while ton-miles increased nearly 14 percent, indicating a longer average haul. Revenue increased about 14.5 percent, while expenses rose 5 percent.

The efficiency of the high income producing integrated tow unit was materially increased by the use of 10 new barges of this type placed in service during the year. These 10 barges doubled the number of this type of barge in use, and contributed to the increased revenue. These efficient barges, however, constitute only 9 percent in number of the Corporation's barges. The other 91 percent, many of which are from 25 to 30 years old, are, in the main, inefficient and worn out.

Until such times as the Corporation may obtain modern and efficient floating equipment, it is reasonable to expect a continued substantial annual loss from its waterline operations.

MARITIME ADMINISTRATION AND FEDERAL MARITIME BOARD

The Maritime Administration was created as a result of the President's Reorganization Plan No. 21, and placed within the Department of Commerce, effective May 24, 1950. At the same time, a three-man Federal Maritime Board was appointed by the President; the Chairman of this Board became, under terms of the Reorganization Plan, the Maritime Administrator. A Deputy Maritime Administrator was appointed by the Secretary of Commerce. The two new agencies supplanted the United States Maritime Commission, abolished by Plan No. 21. The Board assumed the regulatory and subsidy-determining functions of the old Commission, and the Administration was given charge of administrative and operating functions.

Under the Reorganization Plan, three Acting Members of the Board were appointed for an interim period of 3 months. These Acting Members were John T. Koehler, then Assistant Secretary of the Navy (Acting Chairman); South Trimble, Jr., Chairman of the Advisory Board of the Inland Waterways Corporation, United States Department of Commerce; and Rear Adm. Paul L. Mather, United States Navy (retired).

Permanent members named are: Vice Adm. E. L. Cochrane, United States Navy (retired), Chairman and Maritime Administrator, appointed for a 2-year period ending June 30, 1952; A. W. Gatov, for a 3-year term ending June 30, 1953; and R. W. Williams, for a 4-year term ending June 30, 1954.

Earl W. Clark was named Deputy Maritime Administrator.

Within the first 30 days of its existence, the new organization faced two major tasks. First in order of time was the necessity for a thorough reorganization of the former staff and activities of the Maritime Commission, with particular emphasis on liquidating a heavy backlog of unfinished business and meeting a number of specific recommendations made to the former Commission by Congress and the General Accounting Office. The second task was to meet mobilization problems thrust upon the United States by the Communist aggression in Korea.

In the meantime, continuing obligations imposed by the administration of the Merchant Marine Act of 1936, as amended, and by other maritime laws, were assumed by the new organization and have been met throughout the year on a regular and routine basis.

REORGANIZATION

The Maritime Administration attacked immediately the formidable problem of reorganization by extensive changes and strengthening of ad-

ministrative machinery, including selection of new personnel well qualified by their experience in business and professional life, as well as in Government service. Designed originally to meet the peacetime load of administering the Nation's maritime laws, this new organization during its first year had to be modified to provide for full mobilization of the national maritime resources if and when needed, in accordance with the declaration of national emergency by the President on December 16, 1950. Staff committees were established to pursue the remedial recommendations made by the Congress and the General Accounting Office. Substantial progress was made and reported in each of the categories under such review.

The field organization was delegated wider responsibilities so that appropriate authority would exist in areas of action; this was of particular importance in connection with mobilization, emergency shipping, and shipbuilding operations.

SUBSIDIZED OPERATIONS

New streamlined procedures for determining operating-differential subsidies were adopted. As a result, considerable progress was made in reaching final differential rates in those categories on which subsidy payments are made for the years 1947 and 1948. It was expected that by early fall these rates would be substantially completed for these years. A new method of calculating advance operating subsidy rates was commenced, and it is expected that this new procedure will be used for calculating rates from 1949 forward.

The end of fiscal 1951 found nine steamship companies with executed contracts for the resumption of subsidized operations which had been discontinued during the war years. Resumption amendments with three companies were in process of determination. One new postwar contract was signed.

On March 13, 1951, responsibility for determining essential foreign trade routes on which subsidized operations are permitted was redelegated to the Maritime Administration by the Secretary of Commerce. Active studies of foreign competition on these routes, of existing contracts, of ship requirements and sailing schedules, as well as ship replacement requirements of the subsidized operators were under way.

Following a study by the staff of the Maritime Administration, a proposed amendment of the application of "capital necessarily employed," of basic importance in calculating final subsidy payments and recapture, was submitted to the Board to be used in modification of the general order on this subject.

SHIPBUILDING PROGRAM

The fiscal year saw partial completion of the passenger-ship construction program commenced under the former Maritime Commission. Delivery

of two ships—the S. S. *Independence* and the S. S. *Constitution*—was accomplished. The S. S. *United States* was floated and moved to the fitting-out pier for completion. Delivery is expected in the spring of 1952. Three vessels originally ordered for commercial use are being completed for the Navy as troopships, under a request from the Secretary of Defense on recommendation from the Joint Chiefs of Staff. The S. S. *Schuyler Otis Bland*, a new type cargo vessel, was delivered on July 26, 1951, and has been chartered to the American President Lines for operation in Round the World Service.

The international situation and the pressing need for a new type fast cargo ship as a future replacement vessel for the merchant fleet dictated an early start of construction on ships of the *Mariner* class. Congress authorized \$350,000,000 for this program in January, and by June 30, contracts for 30 ships had been let to 6 shipyards on the east and Gulf coasts. Contracts for an additional five ships were placed July 26 with a west-coast shipyard.

New procedures were put into effect for assembling data to be used in determining construction-differential subsidies, with concurrence of the General Accounting Office. The recalculation of subsidy rates, as recommended by the Congress and the GAO, for passenger ship construction and betterment programs carried on by the former Commission progressed materially, with final redetermination of the subsidy to be allowed the two American Export Lines vessels scheduled for early fall. A special independent three-man committee has been engaged in recommending factors to be considered in the recalculation of subsidies and national defense feature costs of these two vessels and the S. S. *United States*.

REDUCTION OF ACCOUNTING AND CLAIMS BACKLOGS

A very large backlog of accounting and auditing work, and the need for reorganization of the Comptroller's functions, faced the new Administration of July 1, 1950. With cooperation of the GAO, marked progress was made in establishing appropriate controls and in finalizing procedures and instructions for financial reports by subsidized operators and charterers. A chart of a uniform system of accounts prescribed for maritime carriers reporting to the ICC and MA has been completed.

Marked progress was made in reducing auditing and accounting backlogs carried over from the former Maritime Commission. For example, at the end of the first quarter of the year 33 delinquent accounts receivable had been cleared, involving \$179,000. In the 3 remaining quarters 2,628 delinquent accounts had been cleared, totaling in value \$23,943,000. There were 4,504 GAO exceptions recorded at the start of the year. Even with the addition of 768 exceptions during the year, on June 30 the total was down to 1,062.

On July 1, 1950, the inventory of wartime claims both in favor of and against the United States recorded in the Division of Claims totaled 4,548

in number and \$44,094,000 in claimed value. During the year, 1,112 more claims totaling \$25,900,000 were filed. By the end of the fiscal year the inventory had been reduced to 1,619 claims, with a claimed value of \$41,400,000.

The other major office engaged in liquidating wartime claims, the Division of Insurance, reduced its recorded claims from \$53,300,000 to \$15,100,000.

CONCLUSION OF SHIP SALES PROGRAM

Sale of warbuilt merchant vessels under the Merchant Ship Sales Act of 1946 terminated on January 15, 1951. Total sales reached 1,956 ships, 843 for American-flag operation and 1,113 for foreign-flag operation. During the period January 1 to January 15, the Maritime Administration approved the sale of 128 ships for United States flag operation.

Under terms of the Sales Act, as amended, chartering of warbuilt ships was continued throughout the year, after determinations made by the Federal Maritime Board that such charters are necessary in the public interest, and that privately owned vessels are not available at reasonable rates and under reasonable conditions. On June 30, 1951, 229 Government-owned merchant vessels were under charter; 148 of them were Victory cargo ships bareboat chartered to United States shipping companies who are operating them under time charters for the Military Sea Transportation Service for use in the Korean campaign.

Six C-4 type vessels were sold under authority of Public Law 856 (81st Cong.) for conversion to use on the Great Lakes in the carriage of iron ore and package freight.

MOBILIZATION AND EMERGENCY ACTIVITIES

The first impact of the defense emergency upon merchant marine resources having been met by the privately owned fleet, augmented by Government ships broken out of reserve, it was essential that administrative machinery be devised and an understanding by Government agencies and the industry be reached concerning the methods to be used for the operation of merchant ships in the event of all-out hostilities. Accordingly, after consultation with maritime industry and labor leaders, the National Shipping Authority was created on March 13, 1951, following an Executive order of February 28, 1951. Mr. Charles H. McGuire, of the Maritime Administration, was named Director, and the National Shipping Authority was incorporated as a unit of the Maritime Administration.

From March 13 to June 30, 190 Liberty ships were broken out of the National Defense Reserve Fleet which had been placed under the NSA. These vessels were repaired and placed in the hands of shipping companies assigned as general agents for their operation. These vessels have provided tonnage at reasonable rates for the expanded ECA and military-aid pro-

grams. By the end of the fiscal year, the NSA had lifted 1,263,996 tons of export cargo.

From June 30, 1950, to July 1, 1951, a total of 510 vessels had been withdrawn from the Reserve fleet. Included were those sold, transferred, or placed in operation by charter or under general agency agreement. The remainder were maintained and received preservation treatment at eight fleet sites. One fleet site was closed during the year.

Operation of an active fleet, using the services of the shipping industry, has enabled the National Shipping Authority to establish an effective basic organization which can be expanded to handle the United States flag merchant fleet if hostilities spread. A formal understanding as to the relationship between NSA and the Department of Defense was reached shortly after the end of the fiscal year by the Secretary of Commerce and the Secretary of Defense.

The NSA was directed to represent the United States in dealing with shipping agencies of allied and associated governments on matters relating to the use of shipping.

A member of the Maritime Administration's staff is the United States representative on the Planning Board for Ocean Shipping of the North Atlantic Treaty Organization. In two meetings during the year the Board agreed upon a plan for mobilization of ocean-going shipping in a single pool, and its allocation, on a world-wide basis, in time of war or wartime emergency. The Board also agreed to the establishment in such circumstances of an international organization of a civilian character to be named the Defense Shipping Authority. These plans were subsequently approved by the Council of the North Atlantic Treaty Organization.

The Maritime Administration, along with other Government agencies and the tanker industry joined in a voluntary plan for pro-rata distribution, among all participating tanker owners and charterers, of petroleum tanker capacity to meet national defense requirements.

Responsibility for administering those phases relating to American shipping as contained in the Department of Commerce's Transportation Orders T-1 and T-2 was assigned the Maritime Administration on April 2, 1951. These orders ban the discharge of cargoes of strategic and critical material destined for countries in the Soviet bloc, China, Hong Kong, and Macao, and forbid all vessels or aircraft under United States registry from entering any port or city under Chinese Communist rule. These orders have effectively stopped such trade in United States flag vessels.

Steps were taken during the year, under the laws governing the transfer of United States privately owned vessels to foreign owners, to tighten control over possible transfers to Soviet bloc countries.

MARITIME TRAINING

The Maritime Administration's program for training licensed officers and unlicensed personnel continued throughout the year; 3,344 officers and

seamen were trained and upgraded but no new seamen were trained to enter unlicensed positions aboard ship. A total of 6,383 men were enrolled in the United States Maritime Service Institute which conducts correspondence courses for men at sea; an average of 1,193 cadet-midshipmen, including 89 Filipinos and 11 Latin-American cadets, were in training at the United States Merchant Marine Academy during the year.

NATIONAL PRODUCTION AUTHORITY

The basic authority under which the programs of the National Production Authority are carried out stems from the provisions of the Defense Production Act of 1950. Pursuant to this act, the President by Executive Order 10161 (dated September 9, 1950) delegated certain authority, under titles I, II, and III of the act, to the Secretary of Commerce who in turn, by Department of Commerce Order 123 (dated September 11, 1950), created the National Production Authority to discharge most of his responsibilities under Executive Order 10161. Because of their relation to the defense program, the new agency was also charged with the Secretary's responsibilities under the Rubber Act of 1948, as amended. Subsequently, on January 3, 1951, certain of the Authority's programming functions were transferred to the newly created Defense Production Administration by Executive Order 10200.

Briefly, the National Production Authority (NPA) is responsible for (1) administering priority and allocation controls over most materials and facilities; (2) in cooperation with other defense agencies developing and promoting measures for the expansion of productive capacity and of production and supply of materials and facilities necessary for the national defense and for the maintenance of a strong economy; and (3) assuring that, after defense needs are met, the remaining supply of materials and products is distributed equitably for nondefense uses.

The Authority began operations with a nucleus of personnel transferred from the Bureau of Foreign and Domestic Commerce of the Department of Commerce. Around this initial group an effective organization was developed with additional staff from other Government agencies and from private industry. As of June 30, 1951, employment was as follows:

Classified employees:	
Full time-----	4, 044
Part time-----	45
WOC personnel-----	166
WAE personnel-----	85
	<hr/>
Total-----	4, 340

The 105 offices of the Department of Commerce Field Service act as the regional representatives of the NPA.

Major Programs

PRIORITIES

The Agency's first formal action was the promulgation of NPA Regulation 1 limiting inventories of materials in short supply to a practicable working minimum. This was followed by NPA Regulation 2, which established a broad system of priorities to assure the right-of-way for defense orders with a minimum disruption of production schedules and civilian supply. As of June 30, 1951, three other regulations have been issued relating to (1) an integrated United States-Canadian priorities program; (2) materials for maintenance, repair and operations; and (3) procedures for appeals.

To supplement and implement the basic priorities regulations, NPA had issued by June 30, 1951, 73 material (M) orders which specify rules for placing, accepting, and scheduling defense orders, and which limit the amount of critical materials to be used for nondefense production.

The material orders vary in emphasis with respect to such matters as allocation, limitations on use and inventories, control of purchases, delivery, acceptance and processing, and substitution requirements. They apply to basic materials, products, and services such as:

Aluminum.	Graphite and carbon electrodes.
Antimony.	Insect wire screening.
Bismuth.	Leather.
Cadmium.	Textiles.
Copper and copper-base alloy	Machine tools.
Ferro-alloys.	Metalworking machines.
Iron and steel.	Passenger cars.
Lead.	Petroleum and gas.
Molybdenum.	Pig and hog bristles.
Platinum.	Power equipment.
Tin.	Printing plates.
Zinc.	Pulp, paper and paperboard.
Chemicals.	Rubber.
Components and related products.	Softwood plywood.
Construction.	Technical and scientific laboratories.
Containers and packaging.	Tungsten.
Electrical components and parts.	Maintenance, repair and operating supplies.
Electric utilities.	
Farm equipment.	

CONTROLLED MATERIALS PLAN

It was formally announced on April 13 that a controlled materials plan would be placed in operation July 1, 1951, in order to meet increasing requirements of the defense program for the basic metals—steel, copper, and aluminum. Under CMP, producers advise the National Production Authority and other designated Federal agencies of their estimated requirements for the three basic materials that they need to manufacture

the specific items they intend to produce. After the estimated requirements are balanced against the known supply of CMP materials, allotments are determined. Each applicant then receives an allotment of his basic material or materials. When presented to the supplier, this CMP allotment is designed to assure that the amounts of steel, copper, and aluminum allotted will be made available. In this way the basic materials for the defense and defense-supporting programs and the industrial expansion program are to be provided on schedule. CMP will prevent an excessive use of materials in specific programs and reserve for civilian production the steel, copper, and aluminum not actually needed for defense. If a producer secures an allocation of controlled materials he is entitled to rate his requirements for any other materials or components needed to complete his authorized production schedule.

CONSTRUCTION CONTROLS

Procurement and production of essential construction materials, and control of construction activities in support of the national defense is provided for under section 302 of the Defense Production Act of 1950. Industrial expansion projects are analyzed to determine the assistance required to complete facilities in the shortest possible time consistent with the objectives of other defense activities. Expedition of the national defense programs has been obtained through the issuance of defense orders, directives, and other forms of priority assistance. A further step was taken in the development of a controlled materials plan to become effective on July 1, 1951.

The Revenue Act of 1950 provided accelerated tax amortization for certified industrial plants vital to the emergency program. As of June 30, 1951, NPA has received 7,057 applications for "Certificates of Necessity" to allow the 5-year tax amortization, and had taken action on 3,036 of the cases. A total of 1,848 applications were recommended for approval to DPA, 889 were denied, and 299 transferred to other delegate agencies.

Under section 302 of the Defense Production Act of 1950, emergency loans may be made for the procurement of materials for the national defense and for the expansion of capacity when other financial assistance is not available on reasonable terms. As of June 30, 1951, a total of 556 applications for loans, representing loan requests of over \$1,446,000,000, had been docketed by NPA. Of this total, 46 applications had been recommended by NPA to the Defense Production Administration for approval of which 30, totaling \$49,791,000, were approved; 2 were approved and subsequently canceled; and 5 were disapproved, with 9 currently pending in DPA. NPA had denied 240 loan applications totaling \$797,555,000. A total of 106 applications had been withdrawn and 7 transferred to other delegate agencies.

CONSERVATION AND SALVAGE

Both conservation and salvage of materials are fundamental objectives of the NPA. A special program was inaugurated on April 5, 1951, to increase the flow of iron and steel scrap to steel mills and foundries to supply the 32,500,000 gross tons of purchased scrap required to maintain the high rate of steel production during 1951. Industry and agriculture cooperated in this effort to channel dormant scrap into defense uses through initiation of scrap mobilization committees in cities, in industries, and in agricultural organizations.

STOCKPILING

The NPA as an administrative body under the Department of Commerce discharges the stockpiling responsibilities assigned to the Department under the provisions of section 2 of the Strategic and Critical Stockpile Act (60 Stat. 598). These responsibilities require cooperation with other designated Federal agencies in determining which materials are strategic and critical, in determining the quality and quantities of such materials to be stockpiled, and in controlling the distribution and use of such materials so as to provide adequate supplies to meet current military and civilian requirements and to permit the acquisition and retention of sufficient quantities in the national stockpile. The actions by which NPA aids in reaching stockpile objectives are in the nature of (1) restrictions on the distribution and use of materials to assure their availability for the stockpile in quantities established by decision of the Vital Materials Coordinating Committee of DPA; (2) issuance of control orders exempting certain materials from purchase limitations when purchased by the General Services Administration and other Federal agencies for the stockpile; (3) prohibition of private importations of rubber and tin which are subject to purchase only by the General Services Administration and the Reconstruction Finance Corporation, respectively; and (4) in some cases, direct allocations made to the stockpile. As of June 30, 1951, there were 22 primary stockpile materials covered by NPA material (M) orders.

MACHINE TOOLS

On the recommendation of NPA the General Services Administration executes appropriate contracts with producers of machine tools to implement the machine-tool pool order program, the purpose of which is to stimulate production of machine tools needed for defense production. Under this program specific contracts called "pool orders," which are initially a financial responsibility of the Federal Government, are placed with individual machine tool builders. Provision is made permitting the firms to divert machine tools from pool contracts to fill orders received from a defense contractor. As the machines are siphoned off to fill other defense orders,

the Government is gradually relieved of the financial responsibility. The program is a purchase and resale operation, except that the resale is accomplished in most cases by the producer rather than by the procurement agency.

As of June 30, 1951, funds certified to General Services Administration for the pool order program totaled \$140,000,000 which would underwrite contract commitments up to \$155,000,000. Thirty-two contracts totaling \$127,600,000 had been tendered by General Services Administration, of which 4 contracts totaling \$10,100,000 had been rejected by contractors, leaving a total net commitment of \$117,500,000 in 28 contracts. Of this net commitment as of June 30, 12 contracts totaling \$37,900,000 had been executed by contractors.

CIVILIAN REQUIREMENTS

In order to insure maintenance of a strong economy, and maximum productivity in support of the defense effort, an Office of Civilian Requirements was established in February 1951.

This Office serves as claimant for products, materials, and services for State, county, and municipal governments; private and religious institutions; wholesale, retail, and service trades; and common-use consumer goods necessary to meet essential civilian requirements. It is responsible for assuring equitable distribution of such products, materials, and services. The Office also coordinates and integrates efforts and activities taken by other claimant and nonclaimant agencies in behalf of the civilian population.

FOREIGN REQUIREMENTS

To provide cooperation in the international distribution of materials, the Authority participates in the development and administration of programs involving allocation of scarce materials, construction and expansion of foreign facilities, export controls, and similar matters.

A special relationship has been established with the Canadian Government by which reciprocal and parallel action is undertaken which affords maximum effectiveness in carrying out the defense-production programs of both countries.

SMALL BUSINESS

The NPA's programs affect the entire national economy and all major segments of the economy are, therefore, represented in the formulation and direction of these programs. The Office of Small Business of NPA, representing the interests of the small businessman, reviews orders and regulations in the making to determine their possible impact on smaller firms and makes recommendations in behalf of small businessmen; issues guides for the participation of small business in the emergency program; and assists in the formation of regional "small business" pools for effective contract negotiations. It also provides spot assistance to small business and conducts

an active program in Washington and in the field for the distribution of prime and subcontracts in the defense program.

LABOR

Many of the Authority's control actions vitally affect or are affected by manpower utilization, unemployment, and dislocations of labor. Through cooperation with the Department of Labor and direct liaison with the national trade unions, measures are designed to help insure optimum utilization of the labor force.

Through its liaison with the labor unions the Authority is in a position to receive and transmit informally information of conditions which might lead to work stoppages. Through these means it is sometimes able to prevent loss of man-hours.

Conversion from civilian to defense production in many industries has resulted in unemployment in some areas. Such unemployment if continued for any length of time could dissipate the skilled work force in an area and create labor unrest. The Authority attempts to prevent such occurrences through giving spot assistance for additional materials and endeavoring to secure defense contracts for companies which are having difficulty in retaining their workers.

COMPLIANCE AND ENFORCEMENT

During the first 10 months of its operations the National Production Authority has placed primary emphasis upon securing voluntary compliance with its orders and regulations. Whenever possible, misunderstandings on the part of industry members of NPA's requirements were corrected through the furnishing of information and explanations by compliance personnel. It will continue to be NPA's policy to seek voluntary compliance but increasing emphasis will be placed upon an enforcement program to insure attainment of defense mobilization goals, and to protect the great majority of businessmen who comply voluntarily with NPA's controls. In addition to routine compliance and enforcement investigations, which are conducted by field offices of the Department of Commerce, three industry-wide surveys have been made of the users of aluminum and of copper, and the users of maintenance, repair, and operating supplies (MRO) under NPA's Regulation 4. The surveys indicate that there has been substantial compliance with NPA's orders and regulations, that most violations were corrected voluntarily when brought to industry members' attention and that steps were taken by them to avoid repetition of violations in the future. In a number of cases, however, punitive action was being considered by the Office of General Counsel. Such action might include criminal prosecution, civil proceedings, or the application of administrative sanctions.

APPEALS

NPA orders and regulations contain provisions for adjustment or exception under which relief may be granted to prevent an unreasonable hardship

to a company or where enforcement of the order would not be in the public interest or in the interest of the national defense. Applications for such adjustments or exceptions are granted or denied on the decision of the NPA official administering the particular order or regulation.

Any person who has filed an application for adjustment or exception requesting relief from the provisions of an order or regulation issued by NPA, and any person who has applied to NPA for an allocation authorization pursuant to an order or regulation issued by NPA and who has thereafter filed an application for adjustment or exception requesting relief from the action taken on his application for an allocation authorization, may appeal to the NPA Appeals Board from the decision of the official administering the particular order or regulation.

The NPA Appeals Board is established as an impartial body and acts as the final agency authority in considering appeals permitted under the regulation. Hearings by the Board are public unless otherwise ordered by the Board. Upon request from either the Appeals Board or from the firm submitting an appeal, the Office of Small Business appears in behalf of the firm at hearings.

From the date of establishment of the Appeals Board on April 25, 1951, through June 30, 1951, the Board has received and docketed a total of 112 appeals. During this period the Board has disposed of 58 appeals. Of the total number of appeals disposed of, relief was granted in a total of 9 appeals, relief was denied in a total of 22 appeals, and the remaining 27 docketed cases were either dismissed as improper appeals or withdrawn by the appellants. As of June 30, 1951, a total of 54 appeals were pending before the Board. A total of 53 hearings have been held since the establishment of the Board.

COOPERATION WITH OTHER AGENCIES

An operation like NPA requires a wide variety of statistical and economic data, some of which is already available in other Government or private agencies. Every effort has been made to use such data and to use the facilities of other agencies in collecting, tabulating, and analyzing such data as may not be available already. For example, it is the policy of NPA to use to the greatest possible extent the facilities of the Bureau of the Census, where appropriate, on a reimbursable basis. This included industry mailing lists, technical and clerical assistance, mechanical tabulating equipment, census reports and data, and the joint sponsorship of data requests. Rather than create new and additional data requests the NPA has adopted certain forms already in use by the Bureau of Mines, and in some instances has made such forms mandatory by NPA M-order. In these cases the forms are issued, received, and tabulated by the Bureau of Mines, NPA receiving from that Bureau such data as may be useful.

Likewise, other Federal agencies are joint enterprisers in the materials program and all are closely integrated. Materials channeled by NPA for

the building of freight cars is a major element in the vital program of the Defense Transport Administration. The increase in electric power, an objective of the Defense Electric Power Administration, is vital to the production of aluminum, one of the most critical materials.

Industry Advisory Committees

Industry advisory committees are utilized by the National Production Authority for drawing upon advice and judgment of American business executives in connection with the vast defense production program. The National Production Authority, as of June 30, 1951, had 397 industry advisory committees functioning in an advisory capacity to its industry divisions.

The Administrator has delegated to an Office of Industry Advisory Committees, reporting directly to him, the responsibility for coordinating all activities relating to industry advisory committees within the National Production Authority. The Office assures that the Authority receives the benefits of a true cross-section of industry views and advice in the establishment, use, and management of these committees, and that the requirements of the Defense Production Act are fully enforced by providing "fair representation for independent small, for medium, and for large business enterprises, for different geographical areas, for trade association members and nonmembers, and for different segments of the industry."

PATENT OFFICE

PATENT EXAMINING OPERATION

CONDITION OF WORK. The fiscal year 1951 brought continued gains in output and decreases in backlog. On June 30, 1951 the patent application inventory (excluding designs) was 201,382, a decrease of 8 percent during the year and 14 percent below the peak reached in fiscal year 1948. Slightly over half the pending applications at the end of this year were awaiting action by examiners while 43 percent were awaiting response by applicants. The remainder were on appeal, in interference, and in pre-examining processes. Patent applications pending in the designs divisions on June 30, 1951, numbered 6,633.

While the 63,237 new applications for patents received (excluding designs) were lower than in any fiscal year since 1945, patents granted in this category, 45,646, represented the greatest fiscal year volume in over 15 years.

Although increased turnover caused a reduction in the average number of examiners employed, total disposals, 81,861 patent and 8,811 design applications, were slightly higher than the previous year.

New design applications received, 4,871, and patents granted, 4,604, were both lower this year than last. However, the backlog of design applications awaiting examiner action was reduced to 2,142 at the end of the year, a

decrease of 3,361. The oldest application at the end of the year had been awaiting examiner action for less than 5 months, a decrease during the year of almost 12 months. Although the number of design examiners did not change greatly during the year, workload improvement was effected partly through assistance, for about 3 months, by the Commissioner's Examiners Division, and partly through a reorganization wherein two divisions were created, thus affording a more workable span of control and better internal alignment.

Emphasis continued to be placed on reducing the patent examining load and on disposing of older cases. A reduction of about 7 months was effected in the age of the oldest patent application, other than designs, awaiting examiner action. At the beginning of the year, about half of the 70 examining divisions had applications pending over 12 months while at the end of the year all divisions had been brought within 11 months.

Effort to increase the effectiveness of the patent examining operation included the filling, by appointment within the Office, of the position of Executive Primary Examiner, vacant since early 1948; formal designation of a Chairman of the Board of Appeals with responsibility for all administrative matters of the Board; continued assistance to the Board of Appeals through temporary Examiners-in-Chief appointed under the provisions of Public Law 452, Eighty-first Congress; unification in direction and coordination of the work of the Board of Interference Examiners and the Office of the Examiner of Trade-Mark Interferences in a single Examiner of Interferences directly responsible to the Commissioner of Patents.

PATENT CLASSIFICATION. Substantial progress was made in patent classification during the year notwithstanding a serious loss of trained personnel. Notable among the projects completed was the establishment of a new electrical class (313) composed of 324 subclasses having 7,517 original and 53,382 cross-referenced United States patents. Continued emphasis was placed upon those aspects of classification work of immediate benefit in reducing waiting time on patent applications. This effort was concentrated primarily on the breakdown of oversize subclasses. There were 538 new subclasses established in 32 existing classes having 13,280 original and 26,753 cross-referenced United States patents. There were 2,386 original and 655 cross-referenced United States patents transferred to existing subclasses to clarify lines. An additional 3,896 cross-referenced United States patents, over 300 published abstracts of abandoned applications, and 1,864 published technical articles, required for search purposes in existing subclasses, were mounted and placed. In this connection, one class (176) having 47 subclasses, and 196 subclasses from 19 existing classes were abolished.

Patents issued during the year were reviewed for accuracy and completeness of classification and cross-referencing, and 7,180 cross-references were mounted and placed.

A project started in 1948 for issuing complete definitions of all revised classes reached a current status during the year with the publication of the last of the classification bulletins containing these definitions. Copies of each of these bulletins were made available for Office use and are offered for sale to the public. A consolidated index to these bulletins was prepared and made available to the public.

TRADE-MARK OPERATION

Examining production in the trade-mark operation reached an all-time high during fiscal year 1951 with a total of 17,869 registrations issued. This represents an increase of approximately 9 percent over last year, when the number registered was a record. This accelerated rate of production reduced the number of cases awaiting examiner action from 24,623 at the end of fiscal year 1950 to 19,404 at the close of fiscal year 1951. The number of new applications filed declined approximately 19 percent below the preceding year's total; there was also an expected decline in the number of applications for republication. By the end of the year, all examining divisions were acting on both new and amended applications within 8 months from the date of filing or amendment.

The publication of 16,380 marks for opposition established a new record. This was accompanied by an increase in the number of oppositions filed. However, there was a slight decrease in the number of interferences instituted and a marked drop in the number of inter parte cancellations filed.

Formulation of Office policy with respect to registrations under the act of 1946 was substantially aided by a number of decisions dealing with questions of registrability and interpretation of this act, handed down by the Court of Customs and Patent Appeals during the year.

ACCOMPLISHMENTS AND GENERAL PROGRESS

A streamlining of the order handling and fiscal operations was put into effect, with a view to reducing the cost and increasing the effectiveness of various operations.

Under the authorization of Public Law 710, Eighty-first Congress, the Office was relieved of the necessity for printing the declaration in trade-mark registrations issued under the Trade-Mark Act of 1946. In order to economize further, printing of court briefs in appeal cases was shifted from the Government Printing Office to a private contractor; changes in typography were made in the Trade-Mark section of the Official Gazette; and production of the Official Gazette by an offset printing process was substituted for the letterpress method which had been continuously employed since January 1872.

The method of preparing Classification Manual copy for photographic reproduction was changed from a punch-card system to electric proportional spacing typewriters. Copy prepared by the latter method saves

production time, produces better and more legible copy, and offers greater photographic reduction.

Reading conditions in the Public Search Room were improved through the installation of fluorescent-type fixtures and lamps on the desks. Also the lighting was improved overhead throughout the patent copy stacks of the Search Room.

Issuance of foreign filing licenses on filing receipts was discontinued and the procedure was inaugurated whereby licenses would be obtainable only upon petition to the Commissioner of Patents.

The Committee on Enrollment registered 318 additional attorneys and agents to practice before the United States Patent Office.

Abstracts of abandoned applications, published in the Official Gazette pursuant to Commissioner's Notice of January 25, 1949, totaled 314 compared with 490 during the previous year when the first of such items was published.

At the end of the year over 58,000 patents had been registered on the Register of Patents Available for Licensing or Sale maintained by the Office as a public service.

A documents protection program was inaugurated toward the end of the year, for the purpose of securing vital Patent Office records at a location outside Washington, D. C.

Under arrangements made by the State Department with the German Patent Office at Munich, the United States Government returned several cases of printed reference material and documents confiscated from the German Patent Office in Berlin by military forces in 1945. These materials, comprising largely printed copies of United States patents, will contribute to reestablishing the records of the Deutsche Patentamt.

The first revision to the Manual of Patent Examining Procedure, published in the previous year, comprised 74 replacement pages. The November 1948 edition of the Patent Laws was reprinted with an addition comprising a supplement of legislation enacted between the pamphlet edition date and September 1950. A Manual of Typing Instructions—Patent Examining Operation was published in usable draft form providing specific instructions for the guidance of typists. Other publications included 76 classification bulletins and 140 replacement pages for the Manual of Classification; General Information Concerning Patents, Guide for Patent Draftsmen, Patent Laws, and Rules of Practice in Patent Cases were reprinted.

The Office sold and furnished 7,619,044 printed copies of patents and trade-marks, an increase of 414,372 over the previous year. Of the total number of copies, 1,109,786 went to libraries and 1,639,490 to foreign countries under exchange agreements.

LEGISLATION

An act approved June 30, 1950, in effect 1 year, permitted application by veterans to the Commissioner of Patents for extension of the terms of their patents. Under the act, 151 formal and 10 informal applications were received, although not all were disposed of during this year.

The Patent Office has continued to cooperate with the House Committee on the Judiciary in its efforts to revise and codify the Patent Laws, title 35, United States Code. Public hearings were held by a subcommittee in June 1951.

PERSONNEL AND BUDGET

The international situation, together with budget matters, were mainly responsible for a rather wide fluctuation in total Patent Office employment. The year started with an employment strength of 1,960. This number decreased by 66 in less than 3 months and then rose to 1,929 employees by the end of November. Thereafter a gradual decline due in part to uncertainties with respect to congressional action on the 1952 budget, resulted in a low of 1,860 employees in June 1951.

Cost of operations during the year was \$11,248,339, of which 77 percent was for personal services, 20 percent for printing and reproduction, and about 3 percent for all other expenses. The increase of \$225,303 over the previous year is due primarily to increased printing expense related to greater volume of patent issues.

Income for the year, representing gross collections less refunds, was \$5,320,225. This is equivalent to about 47 percent of operating costs but is \$110,514 less than the previous year's income. A decline in the number of patent and trade-mark applications filed accounted for a loss of revenue in filing fees; this more than offset the increase in revenue from final fees received for a greater volume of issued patents.

BUREAU OF PUBLIC ROADS

FEDERAL-AID HIGHWAY IMPROVEMENT

With highway usage at an all time peak and highway inadequacies more evident than ever before, highway improvement was continued at about the same rate as in 1950. Improvements completed in the Federal program totaled 20,030 miles, compared to 21,030 the previous year.

In accordance with the President's request of July 21, 1950, that all construction programs be reexamined in the light of critical defense needs, all new Federal-aid highway projects were carefully screened and only those essential to the national defense were approved.

Highway organizations at all levels of Government put forth maximum efforts to provide better travel conditions, but needs continued to accumulate faster than they could be met. Motor-vehicle registrations increased 10 percent in the 1950 calendar year and were expected to increase an

additional 6 percent in 1951, bringing the total to more than 52 million automobiles, trucks, and busses. Increased defense activity caused a striking increase in freight tonnage moved over the Nation's highways. Ton-miles of freight increased from 107 billion in 1949 to 142 billion in 1950 (calendar year). Highway bid prices rose 15.6 percent during the fiscal year.

Federal-aid funds authorized during the fiscal year to assist States in highway improvement amounted to \$450 million with \$202½ million assigned to the Federal-aid primary system, \$135 million to the secondary system, and \$112½ million to the urban system. These funds will remain available until July 1, 1953.

During the year the States completed Federal-aid improvements as follows: 4,850 miles of rural primary highways and 849 bridges; 13,875 miles of secondary or farm-to-market roads and 1,556 bridges; and 554 miles of highways and 294 bridges in urban areas. The Bureau's long-range program for the elimination of hazards at railway-highway grade crossings was continued during the year with 125 grade crossings eliminated, 48 inadequate structures rebuilt, and 357 crossings protected by automatic flashing light signals or other safety devices.

At the end of the fiscal year plans had been approved for or work was underway on improvements to 21,523 miles of highways in the Federal-State cooperative program. These improvements had a total estimated cost of \$1.54 billion of which \$774 million was Federal funds.

Slightly more than 1,000 miles of the improvements completed on the Federal-aid primary system, costing \$166.5 million, was on portions of the National System of Interstate Highways. This system is made up of the most important primary and urban highways. There is no separate allocation of Federal funds for improvements on this system, but, since it is a part of the Federal-aid system, it is being improved with funds for that system. During the year a substantial beginning was made on expressway projects in a number of large cities.

CONSTRUCTION BY THE BUREAU

As the principal road-building agency of the Federal Government, the Bureau is called upon to plan and supervise highway construction for other governmental agencies. In cooperation with the Forest Service of the Department of Agriculture, the Bureau prepared plans for and supervised construction of 567 miles of forest highways and 76 miles of forest development roads. In cooperation with the National Park Service of the Department of the Interior, the Bureau supervised construction of 116 miles of parkways and roads in national parks. Considerable highway construction was under way in Alaska under supervision of the Bureau, in cooperation with the Alaska Road Commission. This work was being done as rapidly as possible because of its defense significance.

In addition to these activities the Bureau supervised construction of roads

for the Atomic Energy Commission, the Bureau of Indian Affairs, the National Housing Agency, and other agencies.

Congress in 1950 authorized construction of access roads to military reservations, defense industries, and sources of raw materials, and provided \$10 million for the purpose. At the end of the year 24 projects had been certified as necessary by the Secretary of Defense or the Secretary of the Interior and were either under construction or being planned. Eighty-four projects were being considered for improvement.

The Bureau supervised Federal assistance to States hit by floods or other disasters during the year. The assistance to Hawaii in the repair of roads and bridges damaged by the armed services during the war and by the tidal waves of April 1946 was continued.

FOREIGN ASSISTANCE

The repair and rehabilitation of Philippine roads and bridges, begun in 1946, was continued throughout the year with the completion of 117 projects. This program has involved assistance in reorganizing the Philippine Bureau of Public Works, training of Philippine engineers (both in the United States and in the Philippines), procurement of modern construction equipment, and completion of long-range highway planning studies.

The program of technical assistance to Turkey, initiated in 1947, was continued throughout the year. Training in equipment operation and repair, engineering design and construction methods, and administrative and supervisory techniques was given 386 Turks during the year, bringing to 1,736 the total trained by the Bureau since 1947. Highway equipment and tools delivered to Turkey by the end of the fiscal year amounted to 15,400 tons valued at \$12.5 million. The Turkish Directorate of Highways has been reorganized along the lines of a modern, efficient State highway department. Basic information needed for long-range planning is being collected and analyzed. In little more than 4 years, the highway transportation system of Turkey has been radically changed. The effect on the economy of the country is already pronounced.

Technical advice and assistance was extended by the Bureau to the Governments of Ethiopia, Liberia, Iran, Costa Rica, Honduras, Peru, and Colombia. Ecuador and El Salvador were aided in specific construction projects. Also during the year the Bureau aided over 200 engineers and officials from foreign countries in studies of highway practice in the United States.

In 1950 Congress appropriated \$4 million for continuing construction of the Inter-American Highway in cooperation with the Central American Republics. New agreements were negotiated with El Salvador, Nicaragua, Costa Rica, and Panama. Work proceeding under previous appropriations was continued in Guatemala and Nicaragua.

SAFETY

The fourth national meeting of the President's Highway Safety Conference was held in Washington in June. Personnel of the Bureau were

active in organizing the conference and in promoting safety on our streets and highways.

RESEARCH

Research in the fields of highway transport, finance, administration, design, and construction methods and materials was continued. The investigation that attracted widest attention was the study of the effect of heavy loads on concrete pavements known as the Maryland Road Test at La Plata, Md. The test, directed by the Highway Research Board, National Academy of Sciences, with participation of the Bureau, 11 Eastern States and the District of Columbia, the Department of Defense, truck manufacturers, and petroleum companies, involved the continuous operation of trucks with various loads over a 1.1-mile stretch of concrete pavement. The test indicates the advisability of the axle-load limit of 18,000 pounds prescribed by law in a substantial majority of the States for the prevention of excessive damage to a large part of the Nation's highway system of which the test road is representative.

NATIONAL BUREAU OF STANDARDS

The National Bureau of Standards is the principal agency of the Federal Government for basic and applied research and development in physics, mathematics, chemistry, and engineering. It also has custody of the national standards of physical measurement, and carries on necessary research leading to improvement in such standards and in measurement methods. In addition to its general responsibility for basic research, NBS 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 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; testing, calibration, and standard samples; and cooperative and consulting services. During the year there was a marked shift in emphasis toward development projects for the Department of Defense. The technical program was carried on in 15 divisions: Electricity, optics and metrology, heat and power, atomic and radiation physics, chemistry, mechanics, organic and fibrous materials, metallurgy, mineral products, building technology, applied mathematics, electronics, ordnance development, radio propagation, and missile development.

Research and Development

The research and development activities of NBS are primarily of two kinds. There are, first, the investigations that result from the Bureau's

responsibility for fundamental measurements in the physical sciences, for the development and maintenance of primary standards in science and engineering, and for the testing and calibration of standard measuring apparatus and reference standards. A second phase of research and development consists of large-scale specific projects undertaken either under direct congressional authorization (e. g., artificial radioactivity, building technology, and high polymers) or for other Government agencies (e. g., ordnance electronics, jet engines, electronic computing machines, and aeronautics).

ELECTRICITY

Work in electricity was primarily concerned with improvement of standards and methods of electrical measurement, the development of electrical standards for industry, and studies of the properties of materials. Defense projects requested by the Armed Forces included systematic studies of the magnetic properties of a variety of iron and steel alloys and measurement of the dielectric properties of new insulating materials. A new technique was developed which increases the "writing speed" of a high-voltage oscillograph to three-fourths the velocity of light. In connection with an investigation of high-rate primary and secondary batteries for the Bureau of Aeronautics, Department of the Navy, a new type of battery was produced which delivers large currents for about 10 times as long as the ordinary lead-acid storage battery although its weight is only about 40 percent as great.

OPTICS AND METROLOGY

Activities in optics and metrology involved the fields of colorimetry, photometry, refractometry, illumination, optical instruments, technology of glass working, interferometry, photographic technology, and thermal expansivity. While work was primarily directed toward the development and maintenance of standards, specific programs were also carried on for other Government agencies. For example, at the request of the Weather Bureau, a new and less expensive system for measurement of visibility at airport weather stations was developed. A new resolving power chart was developed for photographic lenses; this chart enables the user to obtain in a single photograph a complete record of the resolution characteristics of a lens over a wide range of contrast. An investigation was made of the thermal expansion of aluminum and some aluminum alloys for various temperature ranges between -50° and $+400^{\circ}$ C.

HEAT AND POWER

Heat-capacity measurements were made on synthetic rubbers and other high polymers in order to derive their thermodynamic properties. Extensive investigations were carried out on the flow and deformation properties of various rubbers and rubber solutions; these measurements should help in

explaining the superior qualities of the "cold" rubbers. To provide information for the more efficient utilization of heat from sources of atomic energy, the heat capacities of sodium, potassium, and three sodium-potassium alloys were determined at temperatures up to 1,173° K. The heat capacity of gaseous carbon dioxide—of vital importance in calculations of power obtainable by combustion—was measured from -50° to +100° C. and at pressures from 0.5 to 1.5 atmospheres. Increased understanding of the mechanism by which "knock" is produced in automotive engines resulted from compression-ignition studies initiated the previous year. In connection with turbojet combustor design, an investigation was made of the rates of interchange of temperature and velocity between coaxial streams of hot and cold gas under a wide variety of operating conditions. Studies of flame temperatures were carried out by spectroscopic methods in both the ultraviolet and infrared regions of the spectrum.

In cooperation with the Naval Medical Center at Bethesda, Md., a study of the skin temperature differences between corresponding points on the limbs of patients having peripheral vascular disorders was made. Work was begun on the development of an instrument for use by anesthesiologists to measure continuously, to indicate visually, and to record systolic and diastolic blood pressure, pulse rate, arrhythmia, and respiration rate and volume during surgery.

ATOMIC AND RADIATION PHYSICS

A broad program of fundamental research and standardization was carried on in atomic and radiation physics, with particular emphasis on those phases of direct or indirect importance to national defense. During the year, experiments which provided the best values ever obtained for the magnetic moment of the proton, both in absolute units and nuclear magnetons, were completed. At the request of the Office of Naval Research, a program of radiation scattering experiments was begun to obtain data for the design of shields for nuclear reactors or "piles." Studies were made with the new 50-million volt betatron to determine optimum wall thicknesses for protective barriers against high-energy X-rays. A new type of photographic film dosimeter for detection and measurement of atomic radiation was developed. A special radiation source, together with associated portable equipment, was developed to provide the military services with a means for calibration of radiation measuring instruments under field conditions. As a result of work extending over the past 4 years, development of a standardized line of X-ray equipment for military field use was substantially completed, providing facilities far more suited to the purpose than those available during World War II.

CHEMISTRY

A wide range of fundamental and applied research was conducted in physical, analytical, organic, and inorganic chemistry. A program was

initiated to develop practicable methods of preparing sugars and other carbohydrates with radioactive carbon atoms located in specific positions within the molecule. Under the sponsorship of the Office of the Surgeon General, Department of the Army, an investigation of dextran as a blood plasma extender was begun. A fundamental study of acidity and basicity in inert solvents resulted in the development of new indicators which show the presence of acids and bases in organic media, such as lubricating oils and dry-cleaning solvents, by sharp changes in color. A new method was formulated for predicting the extent to which different fuel gases depart from exact interchangeability.

A new analytical procedure developed for the study of the Los Angeles (Calif.) smog was successful in isolating and identifying the irritating gaseous pollutants in the smog and in suggesting the measures necessary for their elimination. Investigations were continued in an effort to develop methods for depositing unusual metals such as molybdenum, tungsten, titanium, and zirconium. A new spectrophotometric method was worked out for the determination of bismuth; this method will make possible more rapid and accurate acceptance-testing of solders, type metals, and other lead-tin alloys. A chromatographic method for analysis of corn sirups was also developed, and a procedure was devised for determination of the impurities in iron at concentrations of a few tenths of a part per million.

MECHANICS

The mechanics of solids, liquids, and gases were the broad topics of research in this field. The work varied from long-range investigations of basic mechanical phenomena to short-range studies of the mechanical action of practical apparatus. An instrument was designed and constructed for accurate measurement of vibrations having very small amplitudes; this device has proved useful in the calibration of gages for measurement of vibrations in machinery, buildings, and the soil. Work on the determination of the physical properties of materials by sonic methods was extended with the initiation of two new major investigations: one to design an instrument for measurement of the viscosity of gases, the other to develop an instrument to indicate continuously the velocity of sound in a liquid. A simple method was worked out for determining the correct sound pressures which must be produced in the ear canal by the audiometers used to measure hearing loss. Construction of an acoustic interferometer, for measurement of velocity and absorption in gases at low pressures, was largely completed. Methods were under development for making evaporated films suitable for resistors, pressure transducers, and other instrumental applications. Equipment for the measurement of air turbulence at supersonic speeds was completed under a development program sponsored by the NACA and carried on in cooperation with the Johns Hopkins University.

ORGANIC AND FIBROUS MATERIALS

Applied research on polymeric materials—rubber, plastics, textiles, leather, and paper—was given added impetus by the international situation, first, because these materials have important military applications for national defense and, second, because the supply of most of them has been adversely affected by dislocations in international trade. Thus, the needs of the military agencies led to the efforts to make papers and plastics having properties outside the range of those previously thought possible. Other research was undertaken to extend the uses of organic materials to replace metals and other substances that are in even shorter supply. Also, the reopening of the Government synthetic rubber plants greatly increased the demand for standard rubber samples and called for investigations leading to better methods of quality control.

In cooperation with the Naval Research Laboratory, a paper composed entirely of glass fibers, with no additive, was developed; although produced primarily for use in gas masks, the new paper should also have extensive use in electronic equipment because of its excellent electrical insulating properties. New information on the road wear and power loss of tires was revealed in a study carried out in cooperation with the Office of Rubber Reserve. Information was obtained on the sampling of shoe upper leather which will eliminate laborious and wasteful testing of individual hides. As the result of several years of research conducted by NBS for the Library of Congress, the Constitution and the Declaration of Independence were permanently preserved in glass enclosures filled with helium. At the request of the Surgeon General's Office, Department of the Army, NBS participated in a Nation-wide research effort to assess various materials for possible stockpiling as blood plasma substitutes for use in the event of a major catastrophe. A new silicone resin pigment was developed for marking clinical thermometers; unlike marking compounds previously used, the new pigment withstands constant immersion in germicides and cleaning solutions. A simple, rapid method for the quantitative determination of rubber hydrocarbon in crude natural rubber was developed, and an improved apparatus for precise determination of moisture in rubber was designed and constructed.

METALLURGY

Fundamental and applied research in physical metallurgy was greatly stimulated during 1951 by the need for new and improved metals and alloys in connection with the defense effort. In the course of the work, new information was obtained on the effect of prior stressing of aluminum alloys on fatigue strength. An evaluation of the use of aluminum and its alloys as roofing and sheathing in housing construction was completed. Investigations of the creep of metals at low temperatures were continued. In an extended study of ship plate, it was established that carbon, phos-

phorus, manganese, and silicon contents, as well as grain size, are significant factors in determining whether or not a particular plate will be susceptible to the propagation of cracks. A study of the corrosion of aluminum and magnesium sheeting for aircraft use in a marine atmosphere was continued. An extensive investigation of the formation of nodular graphite in cast iron was completed.

MINERAL PRODUCTS

Research in the general field of nonmetallic mineral products was concerned with pottery and porcelain, the high-temperature oxides, glass, refractories, ceramic coatings, building stone, concreting materials, inorganic adhesives, lime, and gypsum. Advances continued in the application of ceramics to high-temperature uses in jet and rocket propulsion and as specialized electronic components. Large alkali halide crystals with improved transmission of infrared light were grown. Studies were initiated to improve the resistance of concrete in air-field runways to blasts from jet engines. Flame photometer methods for the analysis of alkalis in cements were explored and improved. Refined measurement of such properties of molten glass as viscosity and surface tension provided a clearer picture of the underlying structure of glass.

BUILDING TECHNOLOGY

NBS continued to conduct laboratory research on technical problems relating to building construction and maintenance and to assist Government and industry in applying scientific principles and information to building design and standardization. Investigative programs were carried on in the fields of structural engineering; fire protection; heating and air conditioning; wall, floor, and roofing materials; and safety engineering. To determine internal strain in hardened concrete, a waterproof strain gage was developed for embedment in concrete during fabrication of test specimens or structural members. A study of the fire hazard involved in the ignition of bedding from glowing cigarettes, undertaken at the request of the Veterans' Administration, was completed. An evaluation of heating methods for small homes was continued in the NBS test bungalow, with investigation of commercial models of forced-air furnaces and distribution systems. An analysis of the water-vapor permeability of 53 coating materials was undertaken for the Department of the Navy, and a study of the water-vapor permeability of interior paints used as water-vapor barriers was made for the Housing and Home Finance Agency. A survey was made of the materials employed by the asphalt roofing industry to stabilize the asphalt used in coating prepared roofings.

APPLIED MATHEMATICS

As in the previous year, activities were concentrated largely in two programs: numerical analysis and statistical engineering. In numerical an-

alysis, considerable emphasis was placed on the study of matrix inversion and methods of integrating partial differential equations, two topics important in the solution of many problems in aerodynamics and other branches of physics. 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. In large part, this work took the form of cooperation with other agencies on the statistical phases of scientific experimentation and engineering tests.

The NBS Computation Laboratory continued to perform computational services for Federal agencies and for their contractors and to prepare tables of mathematical functions important in various branches of science. The computation activities were highlighted by the completion of the first year of operation of SEAC (National Bureau of Standards Eastern Automatic Computer). The machine was operated on a 24-hour-per-day, 7-day-per-week schedule, and a wide variety of important problems was solved for the various agencies of the Department of Defense, for the Atomic Energy Commission, and for the other technical divisions of NBS. The largest share of SEAC time was devoted to computing requirements for mobilization plans of the United States Air Force as part of project SCOOP (Scientific Computation of Optimum Programs).

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 was carried on for the Department of Defense; a large part of the remainder consisted of projects in basic and applied electronics conducted primarily for other Government agencies. A major disadvantage of the printed circuit method, that of incorporating satisfactory resistors in the circuits, was largely overcome by the development of a high-temperature adhesive-tape resistor. To aid in determining the effects of shock and vibration on electron tubes, a miniature piezoelectric accelerometer was developed. A large-scale electrostatic information storage system, or "memory," was designed and incorporated into SEAC (National Bureau of Standards Eastern Automatic Computer). A compact and rugged yet inexpensive portable radiation detector was developed for the Bureau of Ships, Department of the Navy. Development and construction of a low-cost multichannel telemeter system for use in tests of parachutes was completed for the Navy's Bureau of Aeronautics.

ORDNANCE DEVELOPMENT

The work of this division was concerned almost exclusively with the development of electronic, electromechanical, and mechanical devices for the Department of Defense; details are necessarily classified. However, some development work was carried on for other Government agencies.

For example, a new casting resin was developed for the potting of electronic circuits, and a method for the rapid checking and adjusting of resistance values in printed radio circuits was worked out. Other devices completed during the year were a notched-disk magnetic memory for electronic computers and a quick-action clutch which uses piezoelectric crystals.

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. Seventeen radio propagation field stations, extending over North and South America and the Pacific area, were operated by NBS 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. Continuous broadcasts of standard frequency and time were made over the Bureau's radio station WWV at Beltsville, Md., and over an experimental station, WWVH, at Maui, T. H. Studies of ionospheric winds were continued.

Extensive research was continued on the problem of allocation of the radio-frequency channels to very-high-frequency communication and broadcasting services. A study of the propagation factors affecting the use of radio for air navigation and traffic control was continued. A new type of atomic clock utilizing atomic-beam techniques was nearing completion; it is expected that the new clock will have higher accuracy than any previous standard of this kind.

Service Activities

CODES AND SPECIFICATIONS

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. NBS thus provides a central source of information to which Federal, State, and municipal authorities, as well as industry and trade associations, can turn when dealing with problems of safety or with building and plumbing codes. During the year, for example, NBS rendered technical assistance in connection with the drafting of the National Plumbing Code and the development of the New York State Building Code. The National Archives, Treasury Department, Public Buildings Administration, Department of the Interior, National Institutes of Health, National Defense Establishment, and Veterans' Administration were given advice on problems concerned with fire-resistant construction, fire extinguishers, storage of motion-picture films, protection of records, performance of elevators, and safeguards in the transportation of hazardous materials.

TESTING, CALIBRATION, AND STANDARD SAMPLES

Over 300,000 tests and calibrations were performed for other Government agencies and the public. In addition, about 25,000 standard samples were issued by NBS. Typical services of this kind included the sample-testing of over 3,000,000 clinical thermometers purchased by the Government, the life testing of nearly 6,000 light bulbs (a sampling of nearly 7,000,000 purchased by the Government this year), the calibration of approximately 4,500 gage blocks, over 800 measurements of radon in breath samples from radium dial painters or in the workroom air, the distribution of about 1,300 samples of radioactive materials, the calibration of more than 900 water-current meters, the calibration of 35,000 capacity-measuring devices, and the sample-testing of about 10,000,000 barrels of cement purchased by the Government.

COOPERATIVE AND CONSULTING SERVICES

NBS 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.

Typical services included an evaluation of battery additives for the Federal Trade Commission and the Post Office Department; assistance to the Reconstruction Finance Corporation in finding uses for short abaca fibers; advice to the Office of the Quartermaster General on refrigeration and air-conditioning problems; aid to the Army Medical Center in the planning of an instrument system for measurement of cardiac output; participation in the Atomic Energy Commission's "Operation Greenhouse"; assistance to the Federal Civil Defense Administration on radiation instrumentation problems; and consultative assistance to the Architect of the White House and the Committee on Alterations of the White House regarding sound insulation, sandstone weathering problems, and damage to stone masonry from roof leaks.

NBS 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 1,687 positions on such national and international groups. An example is the Bureau's participation in the American Society for Testing Materials, in which NBS is represented by 445 committee memberships. NBS 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 consists of three principal activities: (1) maintenance of a clearing house of technical reports from United States and foreign sources; (2) conduct of an inquiry service for the individual handling of replies to technical questions from business firms; and (3) staff assistance to the National Inventors Council, a group of eminent scientists and inventors serving on a voluntary basis. The Council seeks the aid of independent inventors in solving technical problems for Federal and military agencies. In addition, several functions pertaining to foreign rehabilitation in Marshall Plan countries under the sponsorship of the Economic Cooperation Administration were assigned to the Office.

During the fiscal year 1951, major emphasis was again placed on technical aids to small-business firms, in accordance with the President's budgetary recommendation concurred in by Congress. Special small-business services included: the technical inquiry program; the monthly Technical Reports Newsletter; the monthly Bibliography of Technical Reports; press releases documenting noteworthy technical developments and articles; and the application of trust-fund activities to the reproduction of relatively inexpensive documents of wide interest to small business.

Public Law 776, "To make the results of technological research and development more readily available to industry and business," became effective September 9, 1950.

TECHNICAL CLEARING HOUSE

In the 12 issues of the Bibliography of Technical Reports during the fiscal year 1951, some 3,187 carefully selected technical articles were made available to small-business firms. The year's sales of Publication Board reports totaled approximately \$126,000, of which 43 percent was received for printed reports and the balance for photostat and microfilm materials handled directly by the Library of Congress. The Bibliography of Technical Reports is available to subscribers at a yearly rate of \$5.

The Newsletter, a monthly bulletin highlighting selected material of special interest to small business, maintained a paid monthly circulation of approximately 3,800. In addition, the Newsletter is incorporated into the Bibliography of Technical Reports.

Continuing valuable additions to the Publication Board's collection were assured by arrangements with various Federal, military, and related organizations, including the National Advisory Committee for Aeronautics, the Atomic Energy Commission, the Tennessee Valley Authority, the Naval Research Laboratory, the Signal Corps, the Air Matériel Command, and universities and foundations under contract with the Government.

During the year the resources of the Office were utilized, under contract with the Economic Cooperation Administration, to help provide aid to Marshall Plan countries. This program included:

1. Maintenance of a special technical staff to handle inquiries from countries participating in the European Recovery Program.

2. Establishment and development of a Film Section, charged with responsibility for screening, selecting, and procuring audio-visual aids for subsequent translation into foreign languages for use abroad. In addition, the information assembled by this section will be available for a future domestic film program slanted toward small business, trade associations, and trainee audiences.

3. Screening of technical books and periodicals and their procurement and shipment to participating countries.

4. Digesting and abstracting articles appearing in current United States scientific and technical publications for use abroad.

INQUIRY SERVICE

Technical advice was made available to both foreign and domestic inquirers. During the year, approximately 737 foreign requests and 2,031 domestic requests for information and advice were handled. This workload is in addition to the 40,000 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

Activity of the National Inventors Council, which was on a stand-by basis following World War II, increased considerably following entry of the United States into the Korean conflict. Primary mission of the Council is to stimulate thinking of the inventive public concerning technical problems confronting the armed services. During the year, the National Inventors Council received an average of 1,000 suggestions a month from independent inventors. Of these, about 5 percent were deemed of sufficient importance to warrant further tests, study, or development.

OFFICE OF THE UNDER SECRETARY FOR TRANSPORTATION

The Under Secretary for Transportation is the principal advisor to the Secretary on all transportation matters within the Department. It is his responsibility to work for consistent policy and programs among the several agencies of the Department performing transportation functions. He also handles those transportation mobilization activities delegated to the Secretary of Commerce.

The Under Secretary for Transportation is assisted in discharging these duties by the Office of Transportation and the Office of Civil Aviation Mobilization.

Major activities of the Office of the Under Secretary for Transportation during the fiscal year 1951 included a review of transportation history and policy; an identification of the general problems facing the transportation

industries; as well as mobilization activities with respect to (a) the ocean shipping agreement between the Department of Defense and the Department of Commerce, (b) plans for civil aviation in cooperation with the Civil Aeronautics Administration, the Civil Aeronautics Board, and the Department of Defense, and (c) cooperative efforts to establish transportation goals with the Defense Production Administration and other transportation agencies.

Office of Transportation

Principal activities of the Office of Transportation during the fiscal year 1951 included adoption of an objective program to develop and appraise Government aids to transportation as well as benefits achieved from such aids. The Office also began an examination of policy with respect to charges for use of Government provided facilities. In addition the Office undertook a continuing examination of transportation and its effect on industry and commerce.

In cooperation with the Defense Production Administration a study of goals for transportation planning was undertaken. This study had the objective of translating proposed production goals into demands for transportation service. A research project was conducted on the freight car movements of, and the transportation factors involved in, the marketing of newsprint. A substantial amount of time was spent on reviewing and analyzing possible effects of Federal legislation concerning transportation and on preparing studies bearing on the census of transportation authorized by Congress.

Other activities of the Office consisted of studying the feasibility of a proposed dredging project on a southwestern river and analyzing the effects of barge-line competition with the pipelines from Texas petroleum fields to markets. Crude oil and petroleum products movements by tankers were likewise studied.

MOBILIZATION ACTIVITIES

In connection with transportation mobilization activities, the Office of Transportation analyzed and tabulated requirements for materials submitted by the transportation agencies within the Department for the various quarters of the fiscal year. Involved were the uses of steel, copper, and aluminum for transportation equipment. The Office of Transportation likewise represented the claimant agencies for transportation within the Department, including the Maritime Administration, Bureau of Public Roads, and the Civil Aeronautics Administration, on the various DPA committees. Membership on the DPA Committees on Program Adjustment and Transportation Requirements involved the study of material and equipment requirements for all forms of transportation and presentation of claims therefor and the necessary adjustments to meet quarterly programs.

Office of Civil Aviation Mobilization

To implement plans and programs for the mobilization of the resources and facilities of the civil air transportation industry to meet any future full-scale emergency, the Office of Civil Aviation was established under the direction of the Under Secretary for Transportation, composed of the General Aviation Division, the Airports and Airways Division, and the Air Transport Division. Its main activities during the fiscal year of 1951 have been centered upon reviewing the task group reports of the National Security Resources Board Mobilization Survey and summarizing the major conclusions and recommendations for a report to the Office of Defense Mobilization. This report covered the five basic areas of importance in mobilizing civil aviation—Air Transport; Training; Overhaul and Maintenance; Industrial, Business and Agricultural Flying; Airports and Airways.

Related activities included conferences with the Department of Defense and other interested Federal agencies and private industry organizations regarding an air priorities system which, when required, would permit the maximum use of all available aircraft by both military and civil users.

Plans were completed for the establishment of the Defense Air Transportation Administration, an organization to absorb the functions of the Office of Civil Aviation Mobilization.

WEATHER BUREAU

In fiscal 1951 Weather Bureau services rendered in support of expanding air commerce, agriculture, and industry, and to meet the demands for research and development in meteorology for civil and military requirements were at the highest level ever reached, although employment was below the wartime peak.

WEATHER FORECASTING SERVICE

Fiscal year 1951 marked the conclusion of the fifth consecutive 5-year period in which loss of life from hurricanes was substantially reduced. The season brought 12 storms, 11 of which reached full hurricane force. Four crossed the coast line of the United States, and caused property damage of over \$35,000,000 with loss of 19 lives.

Automatic telephone forecast service of the metropolitan type became available in the ninth United States city when facilities in Philadelphia, Pa., began operation on September 15, 1950. The popularity of this type of distribution of local forecasts continues to increase markedly. The daily averages of calls handled by such automatic systems during the calendar year 1950 were:

Baltimore	15,559	Milwaukee	26,486
Boston	8,915	New York	64,203
Chicago	46,983	Philadelphia	11,151
Cleveland	18,648	Washington	61,158
Detroit	51,042		

On January 29, 1951, Chicago reported a daily total of 292,082 calls.

Plans have been developed for consolidating specialized aviation forecasting activities to secure improved service without increased personnel costs. Experimental consolidations at Boston and Washington have demonstrated the practicability of the plan, which will ultimately be put into operation at 26 centers now rendering limited flight advisory weather service.

Weather Bureau international aviation forecast offices briefed 53,500 aircraft departing from the United States, and provided in-flight forecasts for 67,700 aircraft departing from or destined for United States terminals. In briefing aircraft for international operations, the captain is given a weather map, a pictorial cross-section of the weather expected enroute, route and terminal forecasts (including alternate terminals), forecasts of direction and velocity of winds, data on icing levels and turbulence, and the latest weather reports along the flight path. The forecasts extend from the surface to 25,000 or 30,000 feet. Such briefings during 1951 represented an increase of 38 percent over service provided last year. About a third of the flight forecasts and about a fourth of the briefings were provided for foreign aircraft; the remainder were for United States civil operators and military aircraft on overseas flights.

WEATHER OBSERVATIONS AND REPORTS

The Weather Bureau, in collaboration with the Air Force and Navy, carried out a series of comparisons of their differing types of upper air sounding instruments to determine the compatibility of measurements made by the several services. This program was carried on at Oklahoma City for a period of 3 weeks during June 1951. Because of the requirement to forecast flight conditions at higher and higher levels to meet the needs of new aircraft, the average height of balloon ascents has been increased during the past year from 52,424 to 62,349 feet through the use of improved methods and materials.

On June 1, 1951, a new hourly sequence weather code became effective, with some changes in reports of sky conditions. This is designed to make reports more useful for aviation. Along with these changes the format for transmission and dissemination of the regional and terminal sections of aviation weather forecasts has been considerably simplified to make the terminal forecast section and the hourly sequence weather reports equally easy for direct use by aviation personnel.

The Weather Bureau published:

- (a) 52 issues of Weekly Weather and Crop Bulletin, 4 pages each.
- (b) 13 issues of Climatological Data, National Summary, average 40 pages each.
- (c) 585 issues of Section Climatological Data (13 for each of the 45 sections), averaging 20 pages each.

- (d) 3,096 1-page issues of monthly Station Meteorological Summaries for 258 Weather Bureau stations, and 375 issues of Annual Climatological Data, averaging 4 pages each.
- (e) 1,512 issues of monthly Supplement to Station Meteorological Summary for 126 Weather Bureau stations.

Approximately 500 special tabulations of wind direction and speed were prepared for aviation and engineering interests; there were also many special tabulations to show frequency with which various meteorological elements occur in combination. These studies were produced mostly for military and other Government agencies, but users also included a number for industrial organizations and universities, which financed the work under "trust fund" accounts.

To aid in the study of water resources of the Nation, 163,140 weighing rain-gage charts were evaluated and checked; hourly values were recorded and tabulated. In recording the climate of the Nation more than 10,000,000 observations of surface and upper-air meteorological data were placed on tabulating cards.

The Weather Bureau intensified its programs in the Pacific in support of the military effort in Korea. New or amplified upper-air observations were established at Wake and Midway Islands and at Hilo, T. H., during the year. A main meteorological office, serving the large number of civil and military flights over the Pacific, was established at Wake Island.

The Weather Bureau is assuming responsibility for land-line communications duties (formerly carried by personnel of the Civil Aeronautics Administration) at a considerable number of places where the CAA is integrating their control tower and communications groups. Since the communications load at these points is primarily concerned with weather report transmissions, which can be set up for automatic handling, there is but a slight addition to the work load of the Weather Bureau station. A considerable overall saving to the Government results from this cooperative adjustment of programs between the two agencies.

HYDROLOGIC SERVICES

The savings to the national economy resulting from the Nation-wide flood forecast and warning services rendered by the Weather Bureau again closely approached the 10-year annual average of 30 million dollars. Six river forecast centers and 84 river district offices were operated during the year. Arrangements were substantially complete for establishing one additional river forecast center, for the Tennessee Valley, to operate in cooperation with the Tennessee Valley Authority. A new river district office was established at Reno, Nev. Water-supply forecasts were issued for 336 forecast points, an increase of 44 over the preceding year.

The component parts of new electronic flood routing analogue machines were assembled and laboratory tested by hydrologic and instrument personnel preparatory to installation at river forecast centers.

The Bureau began active participation on various subcommittees and work groups of the Arkansas-White-Red River Basin Committee and the New England-New York Inter-Agency Committee. Hydrometeorological studies completed for other agencies included investigations for the Snake River Basin above Hells Canyon dam site; the Payette River Basin above Garden Valley dam site; determination of maximum possible winds over Lake Okechobee, Fla.; and a report on the Determination of Snow Loads for Building Construction. Surveys of maximum station precipitation for 1, 2, 3, 6, 12, and 24 hours were completed for Utah and Idaho.

RESEARCH AND DEVELOPMENT

Cooperative research programs were carried on in the following fields: At Detroit and Cleveland atmospheric pollution studies were inaugurated; a new project was started to develop information on causes of Hawaiian rainfall; the Great Smoke Pall of September 1950 is being investigated; an analysis of the effect of cycles in rainfall, pressure, and temperature over the United States was continued. Further intensive field work for investigating the causes and effects of tornadoes and squall lines in the Midwest area continued with an expanded observational program, and there was a start on the close analysis of records obtained in this effort. A research study was completed which will permit more accurate forecasting of winter precipitation in the Washington area.

Meteorological work in cooperation with the Atomic Energy Commission at Idaho Falls, Oak Ridge, and Brookhaven, was extended through another year, with some amplification in scope. These offices do considerable research in atmospheric pollution and diffusion.

Basic research on the fundamental physical processes of condensation and precipitation of water vapor went forward in large scale laboratory tests and experiments. This work bears on the important and widely noticed problems of artificial production of rainfall. As far as means permitted, the Weather Bureau continued its effort to test results of large scale cloud seeding and nucleation activities, where carried on under conditions sufficiently definitive to permit sound evaluation. However, only a minor proportion of the vast commercial efforts put into such enterprises in the drought stricken West were conducted and reported in a manner to permit reasonable scientific examination of results. Consequently the whole question of practical value remains unsettled.

INTERNATIONAL COOPERATION

The World Meteorological Organization was established as a specialized agency of the United Nations, in March 1951, at Paris. This organization is the successor to the less formal International Meteorological Organization, which had been in existence since 1878. The member states of the WMO honored the Weather Bureau by electing the Bureau Director as the first president of the World Meteorological Organization.

A beginning was made in the program to take over from the Navy the weather observing activities in the Pacific Trust Territory.

Cooperation in training nationals of foreign governments in United States methods of weather service was continued with representation from Turkey, Ireland, Thailand, Burma, Iran, and several of the Latin-American countries. The Bureau extended meteorological assistance to Greece, Ireland, Peru, and Venezuela, and maintained a meteorological attaché at London for liaison between the Weather Bureau and various European, Middle East, and North African interests.

The operation of high Arctic weather stations, in Canada and Greenland, was continued by joint effort with the governments concerned. The hazardous nature of this enterprise was sadly illustrated by loss, in July 1950, of a Canadian airplane with all aboard, including the Chief of the Weather Bureau Section for Arctic Operations. The plane crashed on Ellesmere Island while on resupply mission to the northernmost station of the Canadian group.

PLANT AND EQUIPMENT

To provide additional and improved methods for disseminating reports and forecasts, the following facilities have been developed: Continuous automatic broadcast equipment for the New York City area; a VHF radio circuit between Burrwood and New Orleans, La., to facilitate the transmission of timely information for the hurricane forecast service; and inexpensive continuous automatic equipment which can be connected to telephone facilities to provide forecasts and other weather information to many more people than can be serviced by ordinary telephone facilities.

In a program to modernize and standardize field offices, rehabilitation was carried out at 75 main stations. A standard briefing display counter was developed and 60 units ordered for installation at field offices. With the adoption of this unit, the material needed for weather briefing will be systematically and logically arranged and pilots will find the same material similarly displayed in all Weather Bureau offices. Development of automatic means for measuring and recording weather phenomena has been emphasized in continuing efforts to reduce observer workload and thereby free more time for public service duties; and to obtain more representative measurements by placing instruments at suitable exposures remote from buildings and obstructions. Major redesign of radar storm-detection equipment has been accomplished. An automatic calibrator for testing radiosondes, which will result in both higher economy and increased accuracy, is now in use.

Other instrumental equipment has been improved as indicated by the following developments: New type bimetallic maximum and minimum thermometers overcome deficiencies of mercury and spirit thermometers. Electric motor-driven psychrometer aspirators make possible more uniform

dry and wet bulb readings and considerably decrease thermometer breakage. New calibrators for direct-reading wind equipment insure continued accuracy of this type installation. Aerological balloons were improved to carry observations to heights averaging more than 15 miles above sea level in flight tests.

ORGANIZATION AND EMPLOYMENT CHANGES

On June 30, 1951, the Bureau had 4,516 full-time employees, 3,380 part-time employees, and 8,450 cooperative observers who served entirely without pay. The number of full-time employees was five less than in 1950, while the number of cooperative and part-time observers remained nearly constant throughout the year. There were approximately 11,000 reporting stations of all kinds in operation as of June 30, 1951. Of this number 387 were primary stations manned and maintained by full-time employees.

Service to the city of Charleston, W. Va., and surrounding counties was begun by establishment in September 1950 of a weather office with complete general weather service responsibilities. During the year stations at Canton, N. Y., and Urbanna, Va., were closed.

ACKNOWLEDGMENT

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