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ANNUAL REPORT

of the Secretary
of Commerce

U. S. DEPARTMENT
OF COMMERCE

1955



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of Commerce



UNITED STATES
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U. S. DEPARTMENT OF COMMERCE

Creation and Significance

The Department of Commerce was designated as such by the act of Mar. 4, 1913 (37 Stat. 736; 5 U. S. C. 611), which re-organized the Department of Commerce and Labor, created by the act of Feb. 14, 1903 (32 Stat. 826; 5 U. S. C. 591), by transferring out of the former department all labor activities.

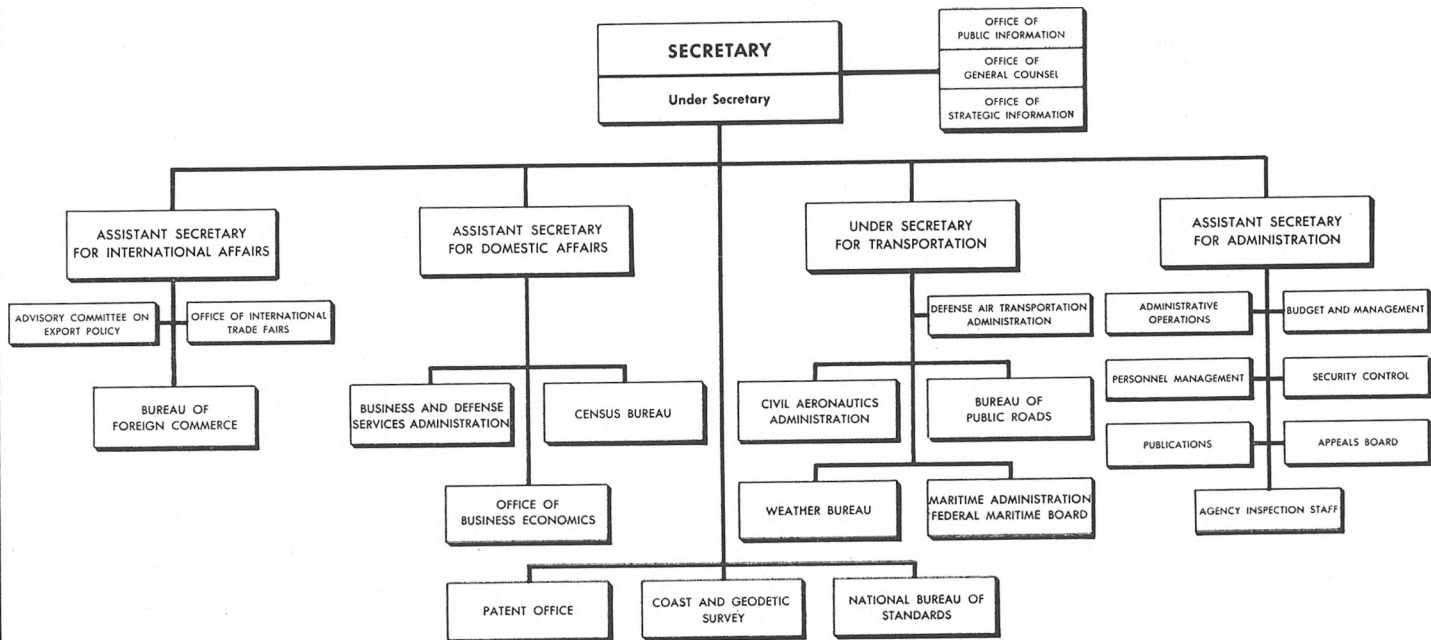
The Department seal of blue and gold is crested by the American bald eagle denoting the national scope of the Department's activities; the ship symbolizes commerce; the lighthouse represents guidance from the darkness, translated as commercial enlightenment; the blue denotes uprightness and constancy; and the gold denotes purity.

The statutory functions of the Department are to foster, promote, and develop the foreign and domestic commerce, manufacturing, shipping, and transportation facilities of the United States. Related functions subsequently have been added or eliminated from the Department from time to time by legislation or Executive order; however, the purposes have remained substantially the same as those for which the Department was established.

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ORGANIZATION OF THE U. S. DEPARTMENT OF COMMERCE



OFFICIALS OF THE DEPARTMENT

As of June 30, 1955

Secretary of Commerce	SINCLAIR WEEKS.
Under Secretary of Commerce	WALTER WILLIAMS.
Under Secretary of Commerce for Transportation	LOUIS S. ROTHSCHILD.
Assistant Secretary of Commerce for International Affairs	SAMUEL W. ANDERSON.
Assistant Secretary of Commerce for Domestic Affairs	LOTHAIR TEETOR.
Assistant Secretary of Commerce for Administration	GEORGE T. MOORE.
General Counsel	PHILIP A. RAY.
Director of Public Information	ALBERT N. LEMAN.
Director, Office of Strategic Information	ERWIN SEAGO.

Heads of Bureaus and Offices Reporting to—

UNDER SECRETARY OF COMMERCE:

Director, Coast and Geodetic Survey	R. F. A. STUDDS.
Commissioner, Patent Office	ROBERT C. WATSON.
Director, National Bureau of Standards	A. V. ASTIN.

UNDER SECRETARY OF COMMERCE FOR TRANSPORTATION:

Administrator, Civil Aeronautics Administration	FREDERICK B. LEE.
Administrator, Defense Air Transportation Administration . . .	THEODORE HARDEEN, JR.
Chairman, Federal Maritime Board .	CLARENCE G. MORSE.
Administrator, Maritime Administration	CLARENCE G. MORSE.
Commissioner, Bureau of Public Roads	C. D. CURTISS.
Chief, Weather Bureau	F. W. REICHELDERFER.

ASSISTANT SECRETARY OF COMMERCE FOR INTERNATIONAL AFFAIRS:

Director, Bureau of Foreign
Commerce LORING K. MACY.
Director, Office of International
Trade Fairs ROY F. WILLIAMS.

ASSISTANT SECRETARY OF COMMERCE FOR DOMESTIC AFFAIRS:

Administrator, Business and Defense
Services Administration CHARLES F. HONEYWELL.
Director, Office of Field Services . GUY E. WYATT.
Director, Office of Technical
Services JOHN C. GREEN.
Director, Office of Business
Economics M. JOSEPH MEEHAN.
Director, Bureau of the Census . . ROBERT W. BURGESS.

ASSISTANT SECRETARY OF COMMERCE FOR ADMINISTRATION:

Chairman, Appeals Board FREDERIC W. OLNSTEAD.
Director, Office of Budget and
Management OSCAR H. NIELSON.
Director, Office of Administrative
Operations WILLIAM M. MARTIN.
Director, Office of Personnel
Management CARLTON HAYWARD.
Director, Office of Publications . . DONALD R. BURGESS.
Director, Office of Security Control . NEWMAN SMITH.

43d ANNUAL REPORT OF THE SECRETARY OF COMMERCE

Transmittal and Statement

DEPARTMENT OF COMMERCE,
OFFICE OF THE SECRETARY,
Washington, December 30, 1955.

SIRS:

I have the honor to report to you the services and information provided to industry and business by the Department of Commerce as its contribution to the enhancement of the economy and record-high prosperity of the Nation during the fiscal year ended June 30, 1955.

To the general public there accrued valuable dividends of improved service and greater economy which, through the policy decisions of departmental official and staff groups, resulted from streamlining our operating systems and further eliminating waste and duplication.

Reflecting the ever-increasing importance of highway transport for production, distribution, and defense, there was undertaken a wide range of engineering, administrative, and research activities to aid the States in planning and developing a system of highways adequate to the Nation's needs. During the year \$671,230,969 of Federal funds were used in the construction of 22,155 miles of highway, the total cost of which was \$1,280,492,334.

In the maritime field, we took several important steps designed to foster the progressive development of a modern and efficient United States merchant fleet and the maintenance of the country's marine industry at the level required to meet the Nation's needs in the event of a national emergency. Among the most notable of these steps were an accelerated ship construction program involving new and replacement vessels for the country's fleet, the repair of a limited number of vessels in our national defense reserve fleets to increase their readiness in the event of emergency and the

development of new designs and propulsion plants for new ships and adaptation to existing ships in the active or reserve fleets.

We handled a greatly increased volume and variety of aviation activities. Numerous installations of electronic aids for air navigation and traffic control were made on the Federal airways to help cope with traffic which registered such increases as a million and a half more landings and takeoffs handled by the Department's Civil Aeronautics Administration control towers in the previous fiscal year. Further to accommodate the needs of increased traffic, the Federal aid airport program was reactivated with new allocations of \$22,245,281 to 192 airports. Introduction in the United States of new types of aircraft such as the turboprop Vickers Viscount highlighted the need for concentrating CAA safety activities where most needed and delegating as many other responsibilities as possible to the maturing industry. A broad study of what could be accomplished in this area was launched during the year.

We continued our program of surveying and charting for the promotion of marine and air commerce and for engineering use. A major accomplishment was the completion of the north-south triangulation arc across the Brooks Range in northern Alaska to coordinate all future surveying and mapping in the Territory. Over 44 million nautical and aeronautical charts were distributed during the year, the largest in the history of the Department.

Weather service accomplishments included noteworthy advancements in hurricane, tornado, and severe weather warning services, and the development of new methods to forecast future weather patterns with the aid of high-speed electronic computers. We also instituted a program to provide daily advices to civil defense authorities at the Federal, State, and local levels on areas likely to be affected by radioactive fallout in the event of enemy attack.

We continued to provide science and industry with the precise measurement standards and techniques that have become so essential to progress in our modern technological economy. Improvements were made in scientific standards, and accurate data were obtained on materials required for new applications in atomic energy, jet flight, and guided missile development. Advances in electronic computing pointed the way toward construction of the superspeed computing machines now needed in business operations as well as in many branches of science and engineering.

Some have deemed the present importance of scientific research to industrial opportunity a "technological revolution." Since the Government is the major sponsor of scientific research and development in this country, financing over \$2 billion worth a year, it places special responsibility upon the Department of Commerce to "feed back" the end product of this tax-supported research to the national economy. We collect the nonclassified technical information derived from Government research and disseminate it

to industry. This program was substantially strengthened in fiscal 1955 in order that American industry and the consumer may more fully realize the benefits of our new scientific discoveries.

We supported currently authorized military and atomic energy programs by channeling scarce materials to meet defense production projects on schedule. In cooperation with the Office of Defense Mobilization and other defense agencies, we progressed on the development of industrial preparedness programs and measures to strengthen the Nation's mobilization base.

Through industry divisions of the Department, industry advisory committees, industry conferences, and day-to-day contacts with the business community, we promoted a broad program of Government-industry cooperation for the exchange of information of mutual interest both to Government and private enterprise.

Under our area development program we not only assisted 240 communities in 42 States in initiating and carrying out industrial and area development programs but also assisted labor surplus areas by informing expanding industries of the location advantages of these areas.

The fertility of inventive genius in America represented in the influx of new patent applications during the year, which was the greatest in any year since 1931, brought the workload of the Patent Office nearly to an all-time high and made more urgent the need for measures to cope with this condition in the interest of preserving the efficacy of the patent system as a vital contributor to the growth and vigor of our free industrial economy. The upswing in our business economy was reflected in an increase in the number of applications for the registration of trademarks covering new products and services moving in the channels of commerce.

The results of the 1954 censuses of business, manufactures, mineral industries, and agriculture, conducted during fiscal 1955, will contribute greatly to the economic intelligence needed for establishment of sound business and government policies. They will provide basic data that have not been available in these various fields for from 5 to 16 years.

We participated in the development of United States policies affecting foreign trade and investment, in international efforts to liberalize trade throughout the world, and in tariff and trade negotiations. We acted to increase travel to and from the United States, participated in foreign technical assistance programs, and, while tightening security controls on strategic exports, eased controls on nonstrategic goods. We strengthened consultation services to business on international trade matters and doubled our publication of business information.

The international trade fair program, inaugurated by the President in September 1954, resulted in United States participation in 15 international trade fairs in Europe and the Far East during 1955. Between 12 and 15 million people visited United States official exhibits which showed

products contributed by 883 American companies. The program encourages two-way trade with other countries, helps American business to sell more products abroad, and reveals the American way of life and system of free enterprise to the people of other lands.

A full report of the Department's accomplishments and expenditures for fiscal 1955 follows.

Respectfully,

A handwritten signature in dark ink, appearing to read "Daniel W. Keefe". The signature is fluid and cursive, with a large initial "D".

Secretary of Commerce.

THE PRESIDENT OF THE SENATE.

THE SPEAKER OF THE HOUSE OF REPRESENTATIVES.

Immediate Office of the Secretary

BUSINESS ADVISORY COUNCIL

The Business Advisory Council in 1955 completed 21 years of service to the Department of Commerce.

The Secretary of Commerce and other Department officials attended six scheduled Council meetings at which a wide range of subjects was discussed.

The Secretary also requested Committee advice on industrial applications of atomic energy, the operation of the Business and Defense Services Administration, domestic economic activity, foreign economic policy, industrial relations policy, mineral policy, patents, and taxation.

Seven new members were invited to serve and 18 active members moved to graduate status. Two members were lost by death.

The active membership was composed on June 30, 1955, of the following:

Harold Boeschstein, Chairman, Toledo, Ohio

Crawford H. Greenewalt, Vice Chairman, Wilmington, Del.

Eugene Holman, Vice Chairman, New York, N. Y.

Reuben B. Robertson, Jr., Vice Chairman, Hamilton, Ohio

Sidney J. Weinberg, Vice Chairman, New York, N. Y.

John D. Biggers, Toledo, Ohio

James B. Black, San Francisco, Calif.

Fred Bohen, Des Moines, Iowa

Ernest R. Breech, Dearborn, Mich.

Paul C. Cabot, Boston, Mass.

James V. Carmichael, Atlanta, Ga.

Walker L. Cisler, Detroit, Mich.

*John L. Collyer, Akron, Ohio

*Ralph J. Cordiner, New York, N. Y.

John Cowles, Minneapolis, Minn.

Harlow H. Curtice, Detroit, Mich.

Charles E. Daniel, Greenville, S. C.

*Donald K. David, Boston, Mass.

Frank R. Denton, Pittsburgh, Pa.

R. R. Deupree, Cincinnati, Ohio

Charles D. Dickey, New York, N. Y.

Marion B. Folsom, Washington, D. C.

William C. Foster, Washington, D. C.

John M. Franklin, New York, N. Y.

G. Keith Funston, New York, N. Y.

F. G. Gurley, Chicago, Ill.

Robert March Hanes, Winston-Salem, N. C.

Charles R. Hook, Middletown, Ohio

*T. V. Houser, Chicago, Ill.

A. W. Hughes, New York, N. Y.

James S. Knowlson, Chicago, Ill.

*Fred Lazarus, Jr., Cincinnati, Ohio

Donold B. Lourie, Chicago, Ill.

*Geo. H. Love, Pittsburgh, Pa.

Roswell Magill, New York, N. Y.

Deane W. Malott, Ithaca, N. Y.

J. W. McAfee, St. Louis, Mo.

Thomas B. McCabe, Chester, Pa.

L. F. McCollum, Houston, Tex.

Paul B. McKee, Portland, Oreg.

Geo. G. Montgomery, San Francisco, Calif.

W. J. Murray, Jr., New York, N. Y.

Aksel Nielsen, Denver, Colo.

A. Q. Petersen, New Orleans, La.

Paul Pigott, Seattle, Wash.

Gwilym A. Price, Pittsburgh, Pa.

Clarence B. Randall, Chicago, Ill.

Alden G. Roach, San Francisco, Calif.

Donald J. Russell, San Francisco, Calif.

Charles Sawyer, Cincinnati, Ohio

C. R. Smith, New York, N. Y.

*J. P. Spang, Jr., Boston, Mass.

*Member of Executive Committee.

Kenneth A. Spencer, Kansas City, Mo.
 A. E. Staley, Jr., Decatur, Ill.
 Robert T. Stevens, Washington, D. C.
 R. Douglas Stuart, Ottawa, Ontario,
 Canada
 Charles Allen Thomas, St. Louis, Mo.

Juan T. Trippe, New York, N. Y.
 *John C. Virden, Cleveland, Ohio
 Thomas J. Watson, Jr., New York, N. Y.
 John Hay Whitney, New York, N. Y.
 Langbourne M. Williams, New York,
 N. Y.

*Member of Executive Committee.

OFFICE OF THE GENERAL COUNSEL

The Office of the General Counsel provides direct legal advice and services for the Secretary, the Under and Assistant Secretaries, and other departmental officials. The General Counsel, the chief legal officer of the Department, also exercises general supervision of the legal divisions in the bureaus and offices which have legal staffs and handles legal matters for those units which do not.

An independent review of the legal staffs of the Department was completed and the report was made to and approved by the Secretary of Commerce. Appropriate orders were prepared to carry the recommendations of the report into effect.

The Office of the General Counsel consists of four basic divisions: Domestic Affairs, International Affairs, Transportation, and General Legal Services. In addition, there are personnel assigned exclusively to legislative services under the immediate supervision of the Deputy General Counsel.

The Office of the General Counsel supplied legal advice and trial services with reference to loyalty and security hearings. An attorney also served on the departmental Appeals Board.

The office maintained an active interest in the field of labor-management relations and in related legislative activity. In this connection, the office participated in discussions which led to the President's recommendations for an increase in the minimum wage under the Fair Labor Standards Act and for continued State activity to raise unemployment benefits.

The Department also maintained a close interest in the field of antitrust legislation and participated in various aspects of antitrust activities. The Secretary of Commerce, as a member of the Attorney General's National Committee to Study the Antitrust Laws, took part in the formulation of studies and reports considered by the Committee.

The Office of the General Counsel is studying these problems from the legal standpoint with a view to helping the various agencies of the Department assist business and industry in their relations with the Government as a whole.

Legislative Activities

The Office of the General Counsel coordinated the legislative program of the Department, performed its legislative liaison functions, and prepared

or reviewed answers to requests from committees or other authorities with respect to pending or proposed legislation and general requests for information. The scope of legislative activities is indicated by the fact that 252 reports were prepared and submitted to the Congress setting forth the views of the Department and 50 more reports were pending at the Bureau of the Budget for clearance.

During the same period the Bureau of the Budget requested the views of the Department on 135 items of legislation. Views on 111 of these items were prepared and submitted. Eighteen legislative proposals were drafted by the Department and submitted to the 84th Congress for enactment.

Domestic Affairs

The Domestic Affairs Division performed all legal work for the Business and Defense Services Administration, Office of Business Economics, Census Bureau, Office of Technical Services, Coast and Geodetic Survey, National Bureau of Standards, and Patent Office.

During the year, the Division was especially occupied with an inspection of the operation by the purchaser of the facilities of the Inland Waterways Corporation and the study and approval of legal aspects of activities in the field of industrial mobilization in the event of war, including the readying of plans and orders to assure availability of needed materials and components for security and essential civilian use.

International Affairs

The International Affairs Division performed all legal work required by the Bureau of Foreign Commerce and falling within the responsibilities of the Assistant Secretary of Commerce for International Affairs. This work involved principally the Export Control Act and the Department's new and expanded program of participation in international trade fairs abroad.

The export control legal work consists of two types: (1) Compliance work (involving the furnishing of legal advice to investigators regarding violations cases under investigation) and the prosecution of administrative compliance cases, and rendering assistance to the Department of Justice in connection with criminal cases; and (2) the preparation of regulations, the review of procedures for conformance to regulations, and assistance in the interpretation of regulations and procedures for licensing officers and the export trade.

The trade fair legal work included legal phases of contracts with American firms and individual specialists for design, architectural, and other services for construction and acquisition in this country of exhibit materials; and arrangements for the use and display at the fairs, by the Government, of items furnished by private firms on a temporary loan basis.

The Division provided a variety of legal services arising under the Foreign-Trade Zones Act, the China Trade Act, and the so-called British Token Import Plan. It was also involved in the preparation of reports to Congress on legislative proposals in the foreign trade field, such as Trade Agreements Extension Act of 1955, Customs Simplification Act of 1955, Mutual Security Act of 1955, Philippine Trade Agreement Revision Act of 1955, and miscellaneous tariff bills.

Transportation Activities

The Transportation Division reviewed numerous legislative proposals, reports, and regulations prepared by the transportation agencies of the Department for the approval of the Secretary. These agencies include the Civil Aeronautics Administration, Maritime Administration, and Bureau of Public Roads.

One of the major legislative proposals drafted by the Division was a bill implementing recommendations of the Presidential Advisory Committee on Transport Policy and Organization. The Division has participated and will continue to participate in the legal phases of the Federal-Aid Highway Act, to be considered at the next session of the Congress.

Legislation providing for the following was enacted into law: Amendment of provisions of the Federal Airport Act relating to obligation and allocation of funds and annual revisions of the National Airport Plan; completion of the Inter-American highway within a 3-year period, sale of certain chartered vessels to Philippine citizens, extension of marine war risk insurance authority, and sale of the S. S. *Monterey* and S. S. *LaGuardia*.

General Legal Services

The General Legal Services Division reviewed all contracts entered into by the Department which must be approved by the Secretary. The number of contracts, leases, bonds, agreements, and similar contractual matters prepared or reviewed was 186. The Division also prepared or reviewed the majority of all requests from agencies of the Department for opinion of the Attorney General or Comptroller General, and other matters submitted to those officials, including reports on litigation; 122 matters referred to those officials were handled. The number of legal opinions and other legal memoranda rendered amounted to 814.

In addition, this Division reviewed for legal effect all Department Orders received and processed applications for free use of Government-owned patents; maintained legal liaison with the appropriate administrative divisions having to do with personnel, budget, and appropriation problems; and rendered day-to-day legal consultative services to the various administrative divisions. The Division also reviewed matters arising under the Federal Tort Claims Act.

OFFICE OF PUBLIC INFORMATION

In keeping with an "open door" policy on news of Department policies, programs and services, the Office of Public Information scheduled additional press conferences and background briefings for the press with Department officials.

In addition to opening up new areas of coverage for the representatives of daily press, trade publications, radio and television broadcasters and other private media, the Office speeded up the daily output of factual information, statistics, and special reports on business, industry, science, technology, transportation and foreign trade which emanate from the Department's primary units.

The Office of Public Information also improved its distribution methods to assure the widest possible circulation of Department news to interested media.

OFFICE OF STRATEGIC INFORMATION

The Office of Strategic Information was established in the Department on November 1, 1954. This Office serves as a central point in the Government to coordinate international exchanges of information, particularly with Soviet bloc countries, so as to provide an increased flow of information to the United States. It serves also as a place where business and industry may voluntarily seek advice on publishing information which might harm national defense.

The office is responsible for working out consistent policies for executive agencies of the Government in handling their own nonclassified publications which might contain information that would harm national defense while, at the same time, assuring that the necessary free flow of information to our own people is not interrupted.

The news media were alerted to the functions and program of the Office, and more than 600 inquiries for guidance were handled. Two interdepartmental advisory committees were established, and representatives from various Government agencies assisted the Office in studying and recommending uniform policies for executive branch agencies.

During the current fiscal year the Office will continue to assist business and industry on a voluntary basis and to advise Government agencies on matters concerning the publication of information which might be harmful to national defense. In addition, special emphasis will be placed on the international exchange of information to insure a well-coordinated exchange program for the executive branch of the Government.

Office of the Assistant Secretary for Administration

The Assistant Secretary of Commerce for Administration serves as the principal assistant to the Secretary on all matters of departmental administration and management. The primary responsibility of this Office is to assure the effective administration of the Department's programs and its proper representation before other Government agencies. The Assistant Secretary also provides policy direction to the activities of the Offices of Budget and Management, Administrative Operations, Personnel Management, Security Control, Publications, Appeals Board, and the Agency Inspection Staff.

During the past year effort was concentrated on increasing the economy and efficiency of administration. Staff of this office worked closely with the operating bureaus to assure that technically sound, effective, and economical management programs were installed and maintained.

The following items exemplify administrative accomplishments during fiscal 1955:

Establishment of the policy to support the requests of all approved charitable organizations by conducting an annual combined charities campaign within the Department. This innovation produced highly satisfactory results with a minimum expenditure of time by employees in soliciting and collecting as well as contributing funds.

Approval and support of plans to conduct three exercises designed to test the readiness of the Department to continue operating under emergency conditions.

Establishment of the Agency Inspection Staff for the purpose of strengthening the confidence of the public and the business community in the Department by promoting and maintaining the high standards of office conduct and ethics of officers and employees in executing the Department's programs.

Establishment and organization, through the Office of Budget and Management, of the Office of Strategic Information for carrying out the authority vested in the Secretary of Commerce by the National Security Council.

Establishment and organization, through the offices reporting to the Assistant Secretary, of the Office of International Trade Fairs under the supervision and direction of the Assistant Secretary of Commerce for International Affairs.

Initiation under the direction of a full-time highly qualified safety director of a comprehensive program of safety promotion, training, and hazard control, with a 2-year goal of 40 percent reduction in injury rate.

In addition, greater emphasis was placed on the development of effective supervisory personnel and the employee suggestion program. As a result of the latter activity, the number of suggestions increased 48 percent, from 1,909 in fiscal 1954 to 2,828 in 1955, and dollar savings increased by almost 64 percent.

Toward strengthening the overall management of the Department, the Assistant Secretary fostered the delegations of authority to the lowest supervisory level feasible; and to assure continuity in the Department's

operations he advised and assisted the Secretary and other secretarial officers on many administrative and management matters.

OFFICE OF ADMINISTRATIVE OPERATIONS

The Office of Administrative Operations provides the immediate Office of the Secretary, Business and Defense Services Administration, Bureau of Foreign Commerce, and Office of Business Economics with housekeeping and other services, such as procurement, supplies, communications, and accounting. It also is responsible for administering the Department's programs relating to motor fleet management, safety, records management, property and space utilization and allocation, and library facilities.

During fiscal 1955 over 10,600 procurement orders were written. Of these, about 29 percent were handled through the imprest fund; others were taken care of by blanket purchase orders which materially reduced the average transaction cost.

Management improvements were the abolition of central files and the relocation of a central information unit, resulting in savings of \$20,000; streamlining of mail operations involving the handling of about 7,000,000 items; continuous surveying of telephone equipment for the purpose of reducing the number of instruments, with a saving of \$26,600; revision and simplification of procedures for reimbursing the Post Office Department for use of the penalty mail privilege, with substantial savings of clerical time; and reorganization of the central stockroom with adoption of a new economical stock replenishment system which decreased the average inventory by \$29,000.

A reorganized safety and motor vehicle program was initiated with 2-year major objectives of a 40 percent reduction of accident rates and a 25 percent reduction of transportation expenses.

The motor vehicle fleet was reduced by 68 vehicles and its maintenance and operating expenses by \$44,000.

In the records field, the removal of 114,000 cubic feet of records from operating space released personal services, equipment, and space valued at \$285,000 on the basis of a General Services Administration formula. Following a survey of the mail, messenger, and records systems of 1 bureau, the records management staff recommended the adoption of improvements with a savings potential of \$185,000.

Through maximum utilization and conservative allocation of space, the Department was able to release to GSA for reassignment 7,360 square feet of Government-owned space at an annual savings of \$12,880 and 13,224 square feet of privately owned space at an annual savings of \$20,232.

Reports of Excess Property received from the Department's bureaus and offices totaled 1,221 and covered property valued at \$3,970,635. Drawing from this source of supply to fill requisitions saved an estimated \$417,735.

Most of the remaining items, after being declared to GSA as surplus property, were sold or otherwise disposed of.

Establishing a new record, the library loaned 112,106 books and other publications to patrons. This was an increase of 11,539 over the previous year. A total of 8,954 volumes were cataloged and 599 were bound. On June 30, 1955, the cataloged collection contained 367,238 volumes; the current periodicals collection contained 2,367 titles. The 1953 *Supplement to Department of Commerce Publications* was published and the *Library Reference List* was issued each month.

A committee of Government librarians appointed by the Assistant Secretary of Commerce for Administration surveyed the Department's library services and submitted recommendations. In accordance with one of these recommendations, a Library Council was established with responsibility for overall library policies, definition of scope and coverage of collections and establishment of criteria for operation of libraries within the Department.

APPEALS BOARD

The Appeals Board for the Department of Commerce serves as an impartial body to make final decision on certain appeals from the public when adversely affected by orders, regulations, or administrative action of the Department in connection with export control matters, importation of foreign excess property, and other statutory authority of the Department. It also hears appeals relating to contracts of the Bureau of Public Roads and other appeals specifically assigned to it by appropriate authority.

During fiscal 1955 the Board disposed of 54 appeals involving 6 formal hearings. No adverse decision by the Board was carried to the courts.

OFFICE OF BUDGET AND MANAGEMENT

The Office of Budget and Management is the central point of control over the Department's financial affairs and organizational development. It develops departmental policy within its area of responsibility, reviews budget estimates, provides criteria for the control of all funds, reviews organizational structures, develops organizational plans, and makes continuing studies of functional and organizational relationships.

The Office reviews departmental administrative and operating practices, procedures, and methods; evaluates the Department's programs in terms of efficiency of management and economy of operations; promotes participation in the Department's management improvement program and the Government-wide joint program for improvement of accounting; furnishes a central fiscal advisory service to all bureaus; and assists the Assistant Secretary of Commerce for Administration in assuring continuity in top management.

During fiscal 1955 this Office also planned and coordinated mobilization activities for the continuity of Government for the Department and assisted in the development of the national civil defense program.

Budget Activities

The Office of Budget and Management considered regular annual budget estimates of \$1,669,879,609 for the fiscal year ending June 30, 1956. After review and analysis by the Office, the Secretary of Commerce approved \$1,404,740,000 for transmittal to the Bureau of the Budget. The President's budget, which was transmitted to Congress on January 17, 1955, included \$1,210,430,000 for the Department of Commerce.

In addition to the regular annual budget estimates, supplemental appropriation requirements for fiscal 1955 in the amount of \$410,390,100 were reviewed. The Secretary approved the supplemental estimates in the amounts requested for transmittal to the Bureau of the Budget. The President approved \$315,031,600 of the 1955 supplemental requests and transmitted them to the Congress for consideration.

Supplemental appropriation requests totaling \$156,595,900 for fiscal 1956 also were reviewed. The Secretary approved \$133,540,900 for transmittal to the Bureau of the Budget. The President approved \$129,454,000 of these requests and submitted them to the Congress.

Summary of Balances, Appropriations and Expenditures, Department of Commerce, Fiscal Year Ended June 30, 1955

	Unexpended balance June 30, 1954	Appropriation for fiscal year 1955	Total (col- umns 1 & 2)	Expenditure fiscal year 1955
Office of the Secretary-----	\$7,280,124	\$2,111,338	\$9,391,462	\$2,348,676
Bureau of the Census-----	1,017,367	30,836,397	31,853,764	26,996,844
Bureau of Foreign Commerce ¹ -----	1,117,798	5,432,000	6,549,798	5,545,617
Business and Defense Services Adminis- tration-----	-----	6,051,229	6,051,229	5,232,710
Civil Aeronautics Administration-----	45,067,949	131,441,359	176,509,308	121,481,168
Coast and Geodetic Survey-----	2,352,199	10,270,200	12,622,399	11,235,357
Maritime Administration-----	186,768,583	228,206,000	414,974,583	163,333,570
Office of Business Economics-----	-----	918,347	918,347	796,144
Patent Office-----	1,116,643	11,645,000	12,761,643	11,249,283
Bureau of Public Roads-----	32,056,156	621,315,000	653,371,156	635,931,739
National Bureau of Standards-----	9,579,040	6,319,961	15,899,001	7,215,483
Weather Bureau-----	5,090,815	25,368,611	30,459,426	25,285,071
Total-----	² 291,446,674	³ 1,079,915,442	1,371,362,116	⁴ 1,016,651,662

¹ Includes expired appropriations for Bureau of Foreign and Domestic Commerce.

² Does not include \$1,622,321,172 of unfinanced contract authorization.

³ Gives effect to appropriation transfers pursuant to Public Laws 24 and 123.

⁴ Does not reflect a credit to expenditures of \$674,517 in Inland Waterways Corporation account.

Management Activities

Directing its efforts toward further strengthening management, improving efficiency, and reducing costs throughout the Department, this Office:

Developed and presented to all the Department's bureaus and offices a five-point management improvement program. Resultant actions produced not only monetary benefits but also improvements in overall management and service to the public.

Furnished leadership, counsel, and technical advice which permitted the Coast and Geodetic Survey to install a new accounting system providing a means for improved budget execution.

Reviewed the Hoover Commission reports and recommendations and submitted comments to the Bureau of the Budget on those recommendations applicable to the Department.

Surveyed all the Department's activities that could be considered commercial or industrial to determine whether any of the services or products supplied for its own use might be procured from private enterprise through ordinary business channels. The conclusion reached, following a complete inventory and evaluation, was that the Department's activities were not of the type classified as commercial-industrial according to accepted business practice.

Developed an improved procedure for reviewing and presenting annual budget estimates that permitted a rapid yet thorough review by Department officials.

Made numerous surveys and studies of the programs, operations, workload, and manpower of the Department's bureaus and offices to locate areas which needed strengthening and made constructive suggestions for improvement.

Established a field review program for the purpose of keeping top management at both the departmental and bureau levels informed on the operating effectiveness of field organizations, with excellent results. Visits and studies made at 24 installations resulted in 83 conclusions and recommendations that were referred to the appropriate departmental or bureau staff for action.

Under delegation of authority from the Secretary of Commerce and the Assistant Secretary of Commerce for Administration, developed the Department's continuity plans to a state of operational readiness and assisted the Federal Civil Defense Administration in developing the national civil defense program.

Planned and conducted three test exercises for the purpose of determining the ability of the Department to carry out its essential functions under simulated emergency conditions.

Participated in the inspection and review of the operations of the Federal Barge Lines (purchaser of the Inland Waterways Corporation), maintained accounting records on the Inland Waterways Corporation, and prepared the financial statement as required by law.

Arrangements were made for a management survey of the Bureau of the Census by a private firm of industrial consultants for the purpose of establishing a more complete work program in the Bureau. Attributed to actions taken early in fiscal 1955 on recommendation submitted by private management firms near the close of the previous year are significant savings such as \$437,000 in the Bureau of Public Roads and \$800,000 in the Bureau of the Census, as well as many less tangible though equally important savings and improvements.

OFFICE OF PERSONNEL MANAGEMENT

The Office of Personnel Management developed regulations, policies, and procedures to effectuate the programs stemming from major legislation enacted during fiscal 1955 in the field of personnel management. This legislation included the Group Life Insurance Act of 1954, title XV of the Social Security Act providing unemployment compensation for Federal

employees, the Fringe Benefits Act of 1954, and the Federal Employees Salary Increase Act of 1955.

In accordance with the Civil Service Commission's new appointment system, employees serving under indefinite appointments who met the conditions specified for entering the competitive service were changed to a career or career-conditional status.

Other major accomplishments included placing the executive development program in operation in all primary organization units; sponsoring an after-hours training program with classes conducted in the Commerce building by a local university; instituting a one-package charities campaign for the Washington metropolitan area which saved considerable time over the previous practice of handling individual charity drives; placing in effect a simplified performance rating plan that resulted in a saving of 25,530 man hours, or approximately \$58,150; and reviewing and simplifying the grievance and appeals procedure of the Department, with a resulting increase in effectiveness and economy in handling appeals and with no adverse effect on the employee's right to fair and impartial consideration of his appeal.

In response to the steps this Office took to increase participation of employees in suggesting improvements and economies in the Department's operations, over 2,800 suggestions were received, of which 423, with an estimated savings value of \$126,000, were adopted.

At the annual awards ceremony, held in February 1955, the Department awarded gold medals for exceptional service to 11 employees and silver medals for meritorious service to 106 employees.

OFFICE OF PUBLICATIONS

The Office of Publications handles the publications control and distribution policy functions and the printing and forms design work of the Department.

Modernization of the Department printing plant was virtually completed during the year. New equipment and lighting resulted in higher quality of printing and streamlined production brought about substantial economies. Although not all new equipment was in use for the full year or even had been installed, productivity continued to increase. Each dollar spent for printing wages in the first half of the 1955 fiscal year produced \$1.93 worth of work as compared to \$1.57 in fiscal 1953. A while-you-wait service and a short-form requisition were inaugurated for small jobs.

All divisions pushed the Department's policy of distribution by sales and cooperated with the Superintendent of Documents in making known the availability of business and technical information published by the Department. Sales through the Superintendent of Documents rose by \$34,000 to \$1,354,000 in the 1955 fiscal year, accounting for 25 percent of his sales and the largest of any Department.

The Office reviewed 141 projects for publications estimated to cost \$712,000 for printing. Twelve of these projects with estimated printing costs of \$38,000 were disapproved as nonessential, and 21 others were approved with conditions.

The Office gave special assistance to the Office of Technical Services to increase the distribution to business of technical reports resulting from Government research.

Office of the Under Secretary

The Under Secretary of Commerce serves as the principal deputy of the Secretary in all matters affecting the Department of Commerce and exercises general policy direction over its bureaus and offices.

In addition he gives particular attention and policy guidance to the Coast and Geodetic Survey, the Patent Office, and the National Bureau of Standards, which are directly responsible to him.

The Coast and Geodetic Survey extended triangulation across the difficult Brooks Range in northern Alaska, which completed the basic geodetic network of the Territory; completed a special triangulation project along the coast of Louisiana in cooperation with the oil industry; undertook an offshore hydrographic survey in the Pacific Ocean for the Department of the Navy; and continued the successful operation of the seismic sea wave warning system for safeguarding lives and property in the Pacific area.

The National Bureau of Standards redetermined the velocity of light by two different methods; developed a radiation measuring device that will be highly useful for calibrating radioactive sources; gathered much data on materials needed for high-temperature applications in nuclear energy, jet aircraft, and guided missile research; calibrated over 150,000 items; issued more than 25,000 standard samples to industrial and research laboratories; and initiated development of a new electronic computer that will be 50 to 100 times faster than its present machine (SEAC), designed and built 5 years ago. The computer research, it is hoped, will lead to a device capable of solving some of the massive problems found in weather prediction, atomic power reactor design, and guided missile development as well as handling the tremendous volume of Government paperwork.

The vital nature of the Bureau's program was shown to many high-level Government officials and industrial and educational leaders at a week-long open house—the Bureau's first in 17 years. At that time the Bureau unveiled a number of significant developments and publicly opened many of the laboratories whose work is so important to science and industry.

The Patent Office accomplishments are best illustrated by an enumeration of its patent and trademark examining activities. The office received 78,480 applications for patent for invention and 5,523 applications for design patent; disposed of 55,499 applications, of which 4,355 were for design patents; and granted 29,473 patents for invention, 116 for plants, and 2,533 for designs. It received 21,515 applications for the registration of trademark; terminated 19,967 applications for registration of trademark; approved for 4,588 applications for registration renewals and 1,535 applications for publication; and registered 16,109 trademarks.

Because of the ever-increasing intake of new patent and trademark registration applications, the possible use of mechanical devices in conducting novelty searches of prior art was proposed. This matter was fully investigated by a special committee appointed by the Secretary of Commerce, and plans were made for implementing the five specific recommendations submitted by the committee.

COAST AND GEODETIC SURVEY

The Coast and Geodetic Survey performs services essential to the safety and advancement of marine and air commerce, to surveying and mapping and other engineering work, and to the economic development of our natural resources. These services are exemplified in their broad outline in the hydrographic and topographic operations of the Bureau, the end result of which is the nautical chart; in the geodetic operations, which provide a framework for the nautical and aeronautical charts of the Bureau, and for the surveying and mapping operations of other governmental and non-governmental agencies; and in the compilation and analyses of basic observational data for diverse uses by science and industry. These are services which are recognized as inherently national responsibilities.

Normal functions of the Bureau play an important part in the protection of life and property at sea and in the air. As a leading maritime nation and a leader in naval power, our country must have full knowledge of the seas around it, the extent of fishing grounds and other submerged lands, the rise and fall of the tide, the direction and strength of sea currents, the variation of the compass, and a knowledge of magnetic disturbances that affect communications. As a leader in air commerce, it must have a continually expanding knowledge of its vast terrain, the natural and man-made hazards to air navigation, and of all details that find expression on the aeronautical charts produced by the Bureau.

The basic program of the Bureau was carried forward during the year in every department of its activities.

Hydrography, Topography, and Tides

Seventeen ships and two shore-based parties were engaged along the coasts of the United States and Alaska making basic hydrographic surveys

and obtaining other information essential for the production of nautical charts.

The program of wire-dragging the sealanes along the Atlantic coast to locate wrecks caused by enemy submarine operations during World War II was continued. Several wrecks were located in the vicinity of Cape Hatteras, N. C. New hydrographic surveys of Browns Bank and the Gulf of Maine were begun.

Along the Pacific coast, the major undertaking was an offshore survey in the Pacific Ocean sponsored by the Department of the Navy. Electronically controlled hydrography was carried to a distance of 400 nautical miles.

Hydrographic surveys were completed in various areas of southeast Alaska, particularly in the area of Prince William Sound, around Prince of Wales Island, and in Cook Inlet. An uncharted submerged rock with 12 feet of water over it at low tide was located in northern Cordova Bay in depths of 360 feet. A special survey was completed in the vicinity of Cape Spencer to determine the position of an uncharted sunken rock struck by a Coast Guard cutter. The rock was found at a minimum depth of 8 feet in general depths of 138 feet. Surveys were also made along the north coast of the Alaska Peninsula; in the vicinity of the Shumagin Islands on the south side of the Peninsula; in the Aleutian Islands, in the vicinity of Adak; and in the Bering Sea, along the southeast coast of St. Lawrence Island. Deep-sea sounding lines were run to and from the working grounds in the North Pacific Ocean and the Gulf of Alaska, as part of the continuous Bureau program of surveying this area.

The topographic mapping program of the Bureau is designed to provide data for aeronautical charts, including charts of airports, and for the construction and maintenance of nautical charts. Photogrammetry is the basic method used in such mapping, supplemented by some ground surveys. Basic mapping was continued in the United States and Alaska, and chart-revision photography was taken of sections of the Atlantic coast, and of a number of harbors along the Gulf and Pacific coasts. Under the airport survey program, field surveys were made at 39 airports, and 40 airports were photographed for compilation of new obstruction plans and for revision of existing ones. A total of 501 plans were on issue at the end of the year.

A chain of control tide stations was maintained at selected places along our coasts to provide the fundamental observations for tide predictions, for charting and mapping, and for other engineering uses, such as the study of long-period changes in sea level. New stations were established at the ends of the Cape Cod Canal; in Newport and Anaheim Bays, Calif.; on Magueyos Island, P. R.; and at Nawiliurli, T. H. Tide records were also received from 40 places in Latin America through cooperative arrangements with the Inter-American Geodetic Survey. Special reports were completed on tide surveys in San Francisco Bay, Delaware Bay, and Puget Sound.

Strength of current observations were made at 31 locations in the waters bordering Massachusetts, Florida, Washington, and Alaska. Observations were continued at two Atlantic coast lightships. Special current survey reports were completed for New London Approach, Portsmouth Harbor Approach, Delaware Bay, Key West Harbor, Puget Sound, and San Francisco Bay.

Tide Tables (in 4 volumes) and *Current Tables* (in 2 volumes) were published during the year to provide advance information on the rise and fall of the tide and the ebb and flow of the current, for use in marine navigation and in harbor construction work. Daily predictions of tides for Mergui, Burma, were included in the tide tables for the first time.

The program of observing the temperature and density of sea water at tide stations was continued. At the end of the year, daily observations were being obtained from 128 stations. The results of these observations were published in a series of four pamphlets. Oceanographic observations, including bathythermographs, water samples, bottom samples, cores, and serial temperatures and densities were obtained in conjunction with hydrographic surveys.

Geodesy, Magnetism, and Seismology

The geodetic networks of control in the United States and Alaska were expanded to provide exact geographic positions and elevations for use in the national mapping program and for other engineering requirements. Reobservations were made in the Fallon, Nev., area, which had been subjected to an intense earthquake. In Alaska, a major accomplishment was the extension of the triangulation across the difficult Brooks Range and along its northern slope. First-order releveled was undertaken in various parts of the United States to determine the extent and magnitude of subsidence due to gradual changes, and to determine the changes brought about by recent earthquakes.

A special triangulation project was accomplished along the coast of Louisiana in cooperation with the many oil companies engaged in offshore drilling operations. Steel towers, up to 90 feet in height, were erected on a number of the offshore platforms to determine the precise locations of the producing wells. The farthest platform located was about 28 statute miles from shore.

Astronomic observations to determine first-order latitude, longitude, and azimuth were made at selected stations in the United States and Alaska. In the West Indies, second-order latitudes and longitudes were observed at 51 geodetic stations for the determination of the deflection of the vertical.

The area gravity survey in Iowa and adjoining States, comprising 87,000 square miles, was continued. The gravity difference between Idlewild Airport and Ciampino Airport, near Rome, Italy, was measured, and a gravity traverse was run between the base point at Idlewild and the Department of Commerce Building gravity base in Washington.

The adjustments of the completed surveys progressed as rapidly as possible, making use of electronic calculators for the voluminous routine computations. The adjustments of the network around the eastern end of the Mediterranean and several supplementary nets in Central America were completed. The office processing of the triangulation of Thailand was continued during the year.

The geomagnetic program of the Bureau is designed to furnish information on the deflection of the compass needle and on other magnetic elements for use in navigation, for surveyors and engineers engaged in retracing old property lines, and for various technological purposes, such as geophysical prospecting for oil and other minerals. Magnetic field observations were made during the year at 6 observatories and 32 stations distributed in the United States and Alaska. Of the latter, 6 belong to the "repeat station" net and 26 were newly established ones. A series of five magnetic charts of the United States for the 1955 epoch was prepared for printing, together with a similar series for Alaska. The new magnetic observatory at Fredericksburg, Va., including a laboratory for instrumental research and development, was completed and was soon to be in full operation.

As part of its earthquake investigation work, the Bureau maintained 8 stations for the detection of distant earthquakes and cooperated in the maintenance of 15 other stations. In addition, it operated 71 strong-motion seismographs in the central areas of destructive earthquakes. Approximately 1,150 earthquakes were located throughout the world by using instrumental reports from cooperating stations in this country and abroad. Of notable interest during the year was a series of earthquakes in the Stillwater Range in western Nevada. The strongest of the group, which occurred on December 16, 1954, produced vertical displacements of 6 to 20 feet and horizontal shifts of 4 to 12 feet. Total displacements were the greatest in North America since the Yakutat Bay earthquake of 1899.

The seismic sea wave warning system for the Pacific Ocean area was continued during the year in cooperation with civil and military agencies. No seismic sea waves were generated by the several major earthquakes that occurred in the Pacific area, but the responsibility of the warning system was considerable since 9 of these earthquakes required a total of 81 warning and precautionary actions. The March 18, 1955, earthquake near the east coast of Kamchatka, the strongest of the year in the Pacific, caused 39 actions to be taken by the Hawaiian authorities. These authorities were advised on the probability of a seismic sea wave about 50 minutes after the earthquake occurred.

Nautical and Aeronautical Charts

Nautical and aeronautical charts are intimately associated with a nation's economic welfare and with its military security. To safeguard these interests, the Bureau has maintained a policy of publishing accurate and

up-to-date charts of the United States, its Territories, and possessions. Developments in navigational aids and in aircraft design have added greatly to the Bureau's responsibility, and have increased the demands for new types of charts and the modernization of existing ones. At the end of the year, 807 nautical charts and 1,550 aeronautical charts in various categories were available to meet the needs of marine and air navigation—an increase of 84 over the previous year. An important addition to the list of charts published by the Bureau is the aircraft position chart covering the North Pacific air routes from Seattle to Tokyo, to meet the needs of civil aviation.

The number of charts distributed during the year reached an all-time high—over 44 million, or an increase of 4.5 percent over the previous year. The 4 jet navigation charts covering the United States were in heavy demand and more than 300,000 copies were printed.

Technical Improvements and Cooperation

The specialized nature of the Bureau's work requires the use of instruments and equipment not always available commercially and therefore most of the improvements in these fields are the products of research and development by its own staff. The Bureau makes use, wherever possible, of new developments in private industry, and in turn the results of its researches are made available to commercial establishments.

Significant improvements made during the year in nearly every branch of the Bureau's activities will result in added accuracy, greater output, and reduced costs. Among these were further refinements in the geodimeter, the instrument that uses a light beam for precision measurement of distances; new circuit designs, and modifications in existing ones, of the electronic equipment used in hydrographic surveying; the design and purchase of a rapid-run magnetograph for the new magnetic observatory at Fredericksburg, Va.; development of a telemeter system for seismic recording by a radio link of 25 miles between the seismic detector and the recorder; the purchase of a commercial precision stereoscopic plotting instrument for use with single-lens aerial photographs; the development of a mechanical method for applying a vignetted water tint to jet navigation charts; and the development of a special ink for use on acetate.

The Bureau continued its cooperation with national agencies and with foreign governments and international organizations. International cooperation is especially important to insure uniformity in charts for navigation, and for the exchange of certain fundamental data dealing with the size and shape of the earth, tides, terrestrial magnetism, seismology, and astronomy, which are necessary to advance the accuracy and efficiency of the work generally. Under provisions of existing international cooperation acts, 9 training grants were awarded to 7 countries, 14 trainees of previous grants continued through this year, and 21 visitors from 13 countries received instruction in Bureau methods for periods of 1 to 60 days.

The technical mission to Liberia was maintained to direct a surveying and mapping program and to establish a cartographic service.

PATENT OFFICE

Patent Examining Operation

The Patent Office during fiscal 1955 received 78,480 applications for patent, over 3,400 more than were received in the preceding year and the largest number of applications received in any 1 year since 1931. Application disposals during the same period numbered 51,144, comprising 29,987 applications allowed and 21,157 abandoned. Thus, receipts exceeded disposals by 27,336 and brought the backlog of pending applications up to 221,872. The decrease of nearly 22,000 disposals from the preceding year was due to the unusually large number of new applications filed, fewer examiner assistants because of budgetary limitations, and concentration of examiner efforts for a considerable part of the year on the examination of new applications, which result in relatively few disposals on first action.

The action which resulted in reduction of disposals also reduced expenditures for the printing of patents and thereby made available funds to retain many needed and experienced examiners who otherwise would have been separated. While increasing the backlog, this action served to reduce the time previously taken for an applicant to receive his first response from the Patent Office concerning the patentability of his invention. By the end of the year, the maximum waiting time for an action on a new application was 13 months.

The Patent Office during fiscal 1955 received 5,523 applications for design patents—very nearly the same number as were filed in the preceding year—and disposed of 4,355 applications, which included 2,539 allowances and 1,816 abandonments. On June 30, 1955, there were pending 7,018 design applications, of which 2,747 were awaiting action by the examiners. With a staff of 14 examiner assistants most of the year (an additional examiner having been assigned during May 1955), the maximum waiting time for actions on new and amended applications was slightly in excess of 7 months.

During fiscal 1955, the Classification Group created 314 subclasses in 25 existing classes. No new classes were established nor was any existing class abolished in its entirety. The new subclasses involved the study and placement of 5,150 original patents, of which 2,333 resulted from abolishing 76 subclasses in 19 existing classes and the remainder from transfer from other subclasses. Miscellaneous transfers of patents from one classification to another totaled 3,832. Reclassification activity was confined to resolving the most troublesome problems where the maximum benefit could be realized from a limited staff.

Mechanized Patent Searching

The Secretary of Commerce formed an Advisory Committee on Application of Machines to Patent Office Operations to study the processes of patent search with a view to reporting on the possible application of electronic or other machines to speed up the processing and disposal of applications.

The advisory committee made the following recommendations directly concerning the Patent Office: (1) The Patent Office should put machine searching of compositions of matter on an operational basis; (2) the reclassification of patents should be accelerated; (3) a research and development unit should be established in the Patent Office; and (4) the National Bureau of Standards and the Patent Office should undertake a joint program to develop machines and techniques specifically adapted to the Patent Office operations.

The recommendations of the committee were immediately accepted in the program objectives of the Patent Office and plans laid for their implementation. Budgetary limitations, however, permitted only limited action under any of these plans.

A separate unit was set up in the Patent Office on February 1, 1955, for the sole purpose of devising and making practical a system for machine selecting of pertinent patents fulfilling novelty search requirements. This unit made significant progress in developing the form of a coding system broadly applicable to the chemical field and engaged in studies seeking to extend the principles of mechanization to the nonchemical field. At the end of the fiscal year no commercially available equipment had been found which is engineered for the specific operations required by the coding system.

Trademark Operations

New and revised procedures in trademark operations during fiscal 1955 were designed to increase efficiency, effect economies, and render greater service to American business. Examination was directed to substance, with form playing very little part; actions were shortened and simplified; and, except in extraordinary cases, no more than three actions were taken in a given case. A program of accelerated handling of amended cases was adopted during the year and will continue until amended applications are handled on a current basis. These actions resulted in greater productivity of the trademark examining operation, even though there was a decrease in personnel.

There were 21,515 applications for registration of trademark received during the year, this being the second largest volume of such applications ever filed in 1 year in the Patent Office. The reduced staff disposed of more applications than in the preceding year. At the end of the year there were 11,752 applications awaiting action by examiners and 7,232 awaiting response by applicants—a total of 18,984 as compared to 19,786 a

year ago. All cases were being acted upon by the Patent Office within 5½ months.

In the processing of affidavits of continued use required by section 8 of the Trademark Act, a concentrated effort was made to act on unacceptable affidavits in time to allow the registrant to submit an acceptable one within the statutory time limit. At the end of the year these affidavits were being acted upon within 45 days after receipt.

The number of affidavits of continued use declined from the peak volume of 31,048 received last year to 17,773 received during fiscal 1955. As such affidavits are required within a specified time to keep a trademark registration in effect, this sharp decline is explained by the fact that the number of applications for trademark publication under section 12 (c) of the Trademark Act of 1946 greatly diminished following the peak volume received in 1948. Disposals were 21,557 in fiscal 1955, compared with 26,717 the preceding year, and exceeded receipts by 3,784, thus reducing the backlog of affidavits.

Among other accomplishments, all trademark material published in the *Official Gazette* was arranged in a manner so that it could be obtained separately on subscription at a substantial reduction in cost; requests for certified copies of trademark registrations were furnished faster to the public and at less cost to the Patent Office; the method of recording assignments was simplified, trademark assignments being recorded separately. The rules of practice in trademark cases were changed to provide a realistic and simplified procedure for the ex parte handling of applications, and to provide an orderly method for obtaining and marshaling facts from which the rights of parties may be determined in inter partes cases.

Availability and Use of Funds

The operating cost of the Patent Office for fiscal year 1955 was \$11,629,318, of which \$9,212,496 or 79 percent went for salaries, \$1,991,663 or 17 percent for printing, and \$425,159 or 4 percent for all other purposes.

The total amount available for expenditure was \$11,645,000—an appropriation of \$11.5 million (one-half million less than the sum appropriated the preceding year), and \$145,000 transferred from the Maritime Administration pursuant to Public Law 123 to provide, in part, for the increase in salary rates which were approved June 28, 1955, retroactive to March 13, 1955.

During the year the Patent Office received \$5,893,846.88 in fees from all sources. Refunds amounted to \$33,013.52, and \$11,226.07 previously received for credit to the deposit trust fund was applied by customers in payment for items and services furnished. As a result, the net income of the Patent Office for the year amounted to \$5,872,059.43, equivalent to 50.5 percent of the operating cost.

Proposed Changes in Patent Office Fees

The bill proposing changes in certain patent and trademark fees, referred to in the annual report for the fiscal year 1954, was reintroduced in the House of Representatives on March 16, 1955, as H. R. 4983. Hearings held by the Subcommittee in Charge of Patents and Trademarks of the Committee on the Judiciary, on June 3 and 17, 1955, included testimony of the Commissioner of Patents on the nature of the proposals and justification for their enactment. A substitute bill, H. R. 7416, differing in some details from the prior bill, was favorably reported on July 18, 1955, too late for consideration in the 1st session of the 84th Congress. It is anticipated that the bill will be taken up during the 2d session.

Exhibit Program

A series of public exhibits illustrating technological advances made by inventors and industry under the American patent system was inaugurated during the year in the main lobby of the Commerce Building in Washington. Private companies supply the displays, which bring to the attention of the public the many benefits of our patent system and its incentives to inventors.

Three exhibits were held representing electronics, chemistry and synthetics, and business machines, and future exhibits will be similarly diversified.

NATIONAL BUREAU OF STANDARDS

The National Bureau of Standards was established by the Congress to provide essential scientific services to Government, business, industry, and science. As custodian of the national standards of physical measurement, the Bureau is the ultimate source in this country for the thousands of standards used in mass production of interchangeable parts, in the development of new products and devices, in the commercial exchange of goods, and in the precise measurement of scientific quantities.

Through calibration services, the Bureau insures the accuracy of countless industrial and scientific instruments and working standards by comparing them with the national standards. It also conducts the research in physical measurement that is necessary to meet the ever-increasing demands of science and industry for new or improved measurement standards.

The Bureau studies, evaluates, and precisely measures the properties of substances and materials, providing a sound basis for their industrial and scientific utilization. It applies the resulting data and techniques in devising methods of testing materials, in developing specifications for Government purchase, in developing building and safety codes, and in testing materials purchased by the Government.

The background in precise measurement provided by the basic work in standards and properties of materials enables the Bureau to serve the Gov-

ernment and the Nation in a variety of other ways. For example, it renders advisory services to Federal agencies on technical problems, invents and develops devices to meet special needs of the Government, and conducts research investigations in such fields as aerodynamics and nuclear physics. The overall program is thus quite broad in scope, embracing a large number of projects in physics, mathematics, chemistry, metallurgy, and various branches of engineering.

As in previous reporting periods, the Bureau's activities during fiscal 1955 were of two major budgetary classes: first, the basic program concerned with fundamental standards, measurement, and properties of matter; second, various projects undertaken for other Government agencies. The basic program is supported by direct Congressional appropriation while the other work is done on funds transferred to the Bureau by the sponsoring agencies.

During 1955 the total funds obligated for both areas of activity, including construction and facilities, were \$19,986,431. Of this total, about 33 percent, or \$6,575,331, was appropriated for the basic program while the remaining 67 percent (\$13,411,100) represented programs conducted for other Government agencies.

In accordance with the recommendations of the Ad Hoc Evaluation Committee which reviewed the Bureau's program in 1953, efforts were made to achieve a better balance in NBS activities by placing greater emphasis on the basic program. While some progress was made in this direction, budgetary limitations prevented the major shift in emphasis that must be made if the Bureau is to meet its responsibilities to American science and industry.

In February 1955 the Bureau held its first major "Open House" in 17 years. Leading members of Government and industry were invited to view the Bureau's facilities and to see the varied scientific program and equipment. This was done in order to make more generally known the services which the Bureau offers to science, Government, and industry. The success of the 1955 Open House led to plans for making this type of presentation on a regular basis.

Research and Development

STANDARDS AND MEASUREMENT.—Progress was made in a number of areas concerned with fundamental standards and methods of precise measurement. A high-resolution system was designed and put in operation for calibrating vibration pickups used in development of guided missiles and high-speed aircraft. Several improvements in equipment and measurement techniques led to increased accuracy of electrical measurements. Among these were improved guarding and shielding for resistance and capacitance standards and development of a bridge circuit for measuring core loss in steel alloys. Advances in the extreme high-frequency range

included a self-balancing bolometer bridge which brought increased speed and accuracy to microwave power measurements. A technique was devised for studying the performance of the highly sensitive microbalances used in such fields as atomic energy, where minute samples must be weighed with high accuracy.

Two devices were developed that precisely measure radiation in terms of the heating effect it produces. One of these, a radiation-balance microcalorimeter, will aid materially in meeting the increased demand for calibration of radioactive sources. The other, an X-ray calorimeter, will serve as a basic standard for measurement of the high-energy X-rays now being used in medical treatment and industrial radiography.

During the year the Bureau redetermined the velocity of light in two independent measurements by quite different methods. The two values are in close agreement and thus provide confirmation for the higher values of electromagnetic wave velocity that have been consistently obtained by microwave measurements since World War II. In one method, the velocity of light was determined from measurement of the molecular constants of carbon monoxide by infrared spectroscopy. The other determination made use of phase-shift measurements on very high frequency radio waves to obtain their velocity of propagation. Before World War II the value $299,776 \pm 4$ kilometers per second was generally accepted as an average of the findings of the various laboratories. However, since the war higher values have been obtained by most investigators (average value, $299,793 \pm 1$ km/sec). The results obtained by the Bureau give $299,792 \pm 6$ km/sec by the molecular constants method and $299,795.1 \pm 3.1$ km/sec by the radio interferometer.

PROPERTIES OF MATERIALS.—In studies of the basic properties of materials, increased emphasis was placed on those inorganic materials that are stable at very high temperatures. Data on such materials are required for further advances in atomic powerplants, high-speed missiles, and jet aircraft, but information on their high-temperature behavior has been lacking. In one project, cermets—heat-resistant ceramic-metal combinations—were studied in connection with their use in jet engines and rockets. The need for nuclear reactor design data prompted an investigation of the high-temperature reactions of uranium dioxide with other heat-resistant compounds. High-temperature concretes were studied to obtain materials for jet aircraft aprons that can withstand exposure to high, variable temperatures. As part of a cooperative interlaboratory study of the extractive metallurgy of titanium, the Bureau prepared selected titanium compounds of high purity. Included were titanium tetrachloride of 99.999 percent purity and 99.998 percent titanium tetrabromide. Other work in the high-temperature field concerned ceramic coatings for protection of high-temperature alloys or for use as high-temperature insulation, diffusion of gases

in glasses, phase equilibria of refractory materials, and thermal decomposition mechanisms of inorganic materials.

DATA PROCESSING.—Large-scale processing of numerical data has become a major management undertaking in Federal agencies. Not only are data processing problems encountered on a massive scale in Government, but frequently they are of such special nature as to require unique design and research services. To provide an advisory center for Government agencies on electronic-computing and data-processing techniques, a data-processing systems laboratory was established as a separate division of the Bureau. Combining NBS programs in analog and digital computers, the new division carries on research, development, and systems design and analysis in these fields. It is thus in a position to advise on the use of high-speed computing techniques in many new areas of potential application—such as massive paperwork operations, automatic control systems, and simulation of physical systems.

The Bureau's high-speed electronic digital computer, SEAC, continued in round-the-clock operation except for a 6-week period required to move it to a new permanent location on the Bureau grounds. Problems were solved in Government procurement and industrial mobilization as well as in aerodynamics, atomic energy, meteorology, thermometry, optics, nuclear physics, thermodynamics, sound, and navigation.

Research on individual computer components led to the development of a new type of amplifier that promises to play an important part in the future design of high-speed computers. Known as the diode amplifier, this compact, rugged device uses germanium or silicon crystals instead of vacuum tubes. Because of its economy and speed of operation, it appears to offer a means for increasing the practical operating speed of present-day electronic digital computers.

In computer components work sponsored by the Naval Research Laboratory, a gas-diode memory circuit was developed for use in a data correlator and classifier. This circuit should find application wherever computed data must be presented for rapid visual analysis. In another project sponsored by the Air Force, packaged circuitry was designed which combines increased logical capabilities with greatly decreased power consumption. These computer packages should make feasible the building of larger and more powerful computing machines without the need for excessively large power supplies and air-conditioning equipment.

At the close of the year plans had been completed for a very powerful computer which will be from 50 to 100 times as fast as SEAC. Although present-day electronic computers calculate at extremely high speeds, there are still many important problems for which they are too slow. Higher speed machines are needed to solve problems in weather prediction, atomic energy, civil defense, guided missiles, business operations, and many other fields.

STANDARD ELECTRONIC CIRCUITS.—A study undertaken for the Navy Bureau of Aeronautics showed the feasibility of standardizing many of the electronic circuits used in Navy aeronautical equipment. Known as the NBS-BuAer preferred circuits program, this continuing investigation seeks to determine those well-known circuit configurations that are common to a wide variety of electronic devices but which now differ unnecessarily in detail. A number of preferred circuits have been selected and prepared for joint NBS-Navy publication as a manual for design engineers.

Although use of the circuits is entirely optional, their application should save critical engineering man-hours, reduce production lead time, and accelerate production. Preferred circuits should also provide the military services with means for simplifying maintenance training, for designing simple "throwaway" units, for achieving improved operational reliability, and for establishing design standard levels.

Technical Services

CALIBRATION AND TESTING.—The calibration and testing services of the Bureau stem directly from its custody of the national standards of measurements. During fiscal 1955 approximately 174,000 items were calibrated or tested. In addition, about 32,500 standard samples of chemicals, metals, and alloys were issued to industrial and research laboratories.

The calibration services, rendered to both Government and the public, involved thousands of instruments and devices sent to the Bureau by industry, private and university laboratories, and other Government agencies. Many of these were master instruments used by industry to calibrate such production tools as shop gage blocks.

Typical of the calibration activity were the following: 694 standard cells, 839 radium sources, 491 sources of radioactive cobalt, 750 items of radiological equipment, 757 hydrometers, 994 water current meters, 33,110 clinical thermometers, and 2,400 dilution pipettes. Testing for the Government included the sample-testing of 3,000,000 lamps and 15,000,000 barrels of cement.

To meet the increasing demand for standard samples of radioactivity a radiochemistry laboratory was established. The new laboratory will prepare and distribute approximately 57 different radioactive nuclides and ores to hospitals, research laboratories, and industrial plants.

COOPERATIVE AND CONSULTING ACTIVITIES.—The Bureau continued to receive numerous requests for technical information and advice from other Federal agencies, State and local governments, universities, and industrial plants and laboratories. Typical services to Government agencies included advice to the Post Office Department on automatic electronic equipment for processing mail; assistance to the Virginia State Highway Department in calibrating equipment for testing highway signs; advice to the Civil Aeronautics Administration regarding the fire hazards of methyl alcohol solutions;

study of the causes of plaster failure in an Alaskan hospital for the Department of the Interior; consultative service on the elevators in the U. S. Capitol; advice to the Federal Trade Commission in the preparation of an amendment to the Flammable Fabrics Act; suggestions to the National Zoological Park on flooring for animal cages; assistance to the National Institutes of Health in acoustical design of interview rooms; and cooperation with local authorities in California and with the Department of Health, Education, and Welfare on the smog problem.

The Bureau also participated in the work of hundreds of technical committees, societies, associations, and commissions organized to bring new advances of science into the technology of industry, to standardize materials and products for greater economy and improved quality, and to establish uniform scientific standards throughout the world. Besides serving on numerous panels and committees of other Federal agencies, Bureau staff members held committee memberships in more than 140 national and international groups such as the American Society for Testing Materials, American Standards Association, American Society of Mechanical Engineers, American Chemical Society, and the International Committee on Weights and Measures. An important area of international cooperation concerned the international geophysical year of 1957-58, during which scientists of 40 nations will make simultaneous worldwide observations of physical phenomena related to the earth. Bureau staff members were active in both national and international planning for the international geophysical year and also rendered consultative services in connection with the design of observational equipment.

Office of the Under Secretary for Transportation

The Under Secretary of Commerce for Transportation serves as principal adviser to the Secretary of Commerce on transportation matters and is responsible by delegation from the Secretary for coordination of transportation policy within the executive branch. He is also responsible for policy direction of the Department's transportation agencies and Weather Bureau and coordination of their activities. These agencies are the Civil Aeronautics Administration, Defense Air Transportation Administration, Maritime Administration, Bureau of Public Roads, and Weather Bureau.

During the past fiscal year all of these agencies in the Department were engaged in developing and administering expanded programs. The Civil Aeronautics Administration worked on a broad Federal-aid airport program to provide additional assistance in the construction and improve-

ment of airport facilities needed to accommodate expanded aviation activities. The Federal-aid highway program was increased over 50 percent—from \$575 million a year for fiscal years 1954 and 1955 to \$875 million a year for fiscal years 1956 and 1957. The Maritime Administration administered the accelerated ship construction program. The Weather Bureau installed new equipment for the detection of severe storms and inaugurated new research programs.

The Under Secretary of Commerce for Transportation assisted in formulating the report of the President's Cabinet Committee on Transport Policy and Organization, of which the Secretary of Commerce was chairman, and in developing proposed legislation. As Chairman of the Air Coordinating Committee he brought about coordination between the Federal Government and industry on a number of aviation policy matters of joint interest. He also assumed leadership in coordinating activities within the Department and other Federal agencies to complete the study of navigational clearances for highway and railroad bridges. As a result of this study, which was focused on reducing transportation costs borne by the public, substantial savings were realized in the cost of constructing, operating, and maintaining bridges without seriously interfering with waterway commerce.

A report on the need and feasibility of a census of transportation was nearing completion. Other important activities included review of reports prepared for the Department by the Transportation Council; cooperation with the Office of Defense Mobilization and the Federal Civil Defense Administration in transportation mobilization planning activities, including departmental planning for continuity of operations of transportation agencies in event of emergency; the provision of informational services to Government, industry, and the general public; and the review of the transportation recommendations of the Hoover Commission and the recommendations of the Commission on Intergovernmental Relations, followed by the formulation of plans for carrying out these recommendations in cooperation with other Government agencies and industry.

CIVIL AERONAUTICS ADMINISTRATION

The Civil Aeronautics Administration is responsible for the movement of air traffic along the airways and at busy airports, the certification of aircraft and airmen, and the development of an adequate national airport system. Good progress was made during the year in carrying out the three major programs—airways, safety, and airports—which all have as their primary purpose safe flying.

The Federal airways mileage was increased and new facilities installed, new types of aircraft were approved and an increased number of student, private, and commercial pilots certificated, and the Federal-aid airport program was reactivated by a congressional appropriation of \$22 million, all in the interest of safer and faster flight for a greater number of passengers and planes.

CAA obligations in fiscal 1955 totaled \$133,181,571, compared with \$114,162,606 in the previous year.

Federal Airways

During the year ended June 30, 1955, the length of "Victor" airways—those sky lanes marked out by the electronic beams of very high frequency omnidirectional radio ranges (VOR or omniranges)—was increased by 12,000 miles to 74,000 statute miles of primary airway, and alternate or bypass "Victor" airways were increased by 2,800 miles to 25,000 statute miles.

The number of VOR's was increased by 27, bringing the total to 410. Distance measuring equipments (DME) increased by 64 to a total of 231. In addition, 10 instrument landing systems (ILS) were commissioned, bringing the total number in operation to 157, and 5 airport surveillance radars (ASR) were commissioned, making a total of 32. A long-range surveillance radar commissioned at New York covers a radius of about 100 miles.

The increased use of direct radio communications between pilots and controller personnel in air route traffic control centers, and of radar as a traffic control tool, further expedited the handling of arriving and departing aircraft. Two additional military-civil radar approach control centers were commissioned, making a total of 3 in a program of 18.

Economies were effected by combining 12 more airport traffic control towers with their associated communication stations, making a total of 73 combined stations.

Changed requirements permitted economies through discontinuance of 14 light beacons, 6 intermediate fields, 5 low-frequency radio ranges, 11 nondirectional radio beacons, 42 fan markers, and 2,800 miles of low-frequency airways.

Equipment for traffic control and navigational aids in six countries was purchased for the Foreign Operations Administration (now the International Cooperation Administration). Of a \$3,402,000 total program, \$1,800,000 was obligated by the year's end.

The Board for the Security Control of Air Traffic in Air Defense was created by joint CAA-Air Force directive to carry out directives from the National Security Council and the President. CAA and military action has resulted in greatly improving the identification capability of the Air Defense Command operations.

A joint CAA-Air Force agreement was reached whereby Air Force traffic controllers will be qualified and certificated in the same manner as CAA controllers, thus facilitating operation of the common system of air navigation in conformance with the President's civil air policy.

CAA air route traffic control centers and RAPCONS (radar approach control installations) reported handling a total of 18,543,476 fix postings.

(A fix posting is the flight information reported for 1 flight at 1 radio fix.) This represents an increase of 19 percent, or 2.9 million, over fiscal 1954.

CAA airport traffic control towers reported 18,800,577 aircraft operations, an increase of more than a million and a half aircraft movements over fiscal 1954.

The entire airways picture for the next 10 years has been under study by CAA to provide for the expected doubling of air traffic by 1965. The study has established basic requirements on which to build a successful program. With the coming of turbine-powered aircraft flying at high altitudes on direct off-airway routes, navigation and traffic control aids that provide coverage of the entire airspace between 18,000 and 75,000 feet are necessary. To meet the needs of pilots who fly by visual flight rules, it will be necessary to extend navigation coverage down to 700 feet along the airways. Double the present number of modern navigational aid installations will be necessary for high-altitude coverage of all airspace and low-altitude coverage of airway routes. A stepped-up radar program will be required to give the traffic controller an instantaneous picture of the traffic in his sector and an accurate method of identifying and dealing with the individual aircraft which make up the picture.

Aviation Safety

Continued expansion of the scheduled air carrier industry included the introduction of the Vickers Viscount, of British manufacture, the first turboprop-powered aircraft to be used in United States scheduled service, and the delivery of new, larger, and faster aircraft such as the Douglas DC-7 and Lockheed Super Constellation. In fiscal 1955, civil aircraft manufacturers shipped 4,232 aircraft, weighing 10,195,000 airframe pounds and valued at \$267,972,000.

Certification and operational problems increased in complexity with the use of the new aircraft and the development of turboprop- and turbojet-powered transports. A number of foreign aircraft projects reached stages of development ranging from preliminary discussions to actual technical evaluation of prototype models.

With the continued steady growth in aviation activities, measures were required to place increased responsibility for safety on the aviation industry and operators. A committee was appointed in January 1955 to develop concrete proposals as to which functions could be transferred, delegated, or eliminated and which should be retained. The report was completed shortly after the close of the fiscal year and sent to aviation industry groups and trade associations for consideration.

Increased surveillance of irregular air carrier operations and especially of military contract flights, initiated in fiscal 1954, contributed to the best 2-year safety record of this group of carriers.

CAA actively carried on its policy of disseminating safety information to the industry. Approximately 300 reports published during the year covered over 1,400 mechanical difficulties which the air carrier operators considered to be hazardous. These reports were disseminated to air carriers, manufacturers, and others for establishment of corrective measures.

There were increases in fiscal 1955 in the number of student, private, and commercial pilot certificates issued. However, airline transport pilot certificate issuances declined from the previous year. Student certificate issuances increased 11 percent, private increased 11 percent, commercial increased 14 percent, and airline transport decreased 20 percent.

Airports

The Federal-aid airport program was reactivated by an appropriation of \$22 million for fiscal 1955 after a 1-year discontinuance of new grants. Allocations totaling \$22,245,281 were made to 192 airports. Requests for Federal aid to airports greatly exceeded the available appropriation, and in selecting projects aid was necessarily limited to airports having the highest priority.

The total Federal-aid airport program appropriations for the fiscal years 1947-55 were \$236,221,154. As of June 30, 1955, the total program covered 2,665 projects representing \$212,627,619 in Federal funds. Of these, 2,654 projects amounting to \$211,582,294 were under grant agreement.

The program announced for the 1956 fiscal year involved a total of 205 grants amounting to an allocation of \$20 million. An additional authorization of \$42.5 million for fiscal 1956 was included in an amendment to the Federal Airport Act approved by the President on August 3. The new law further authorizes a level of \$63 million for Federal grants for each of the next 3 fiscal years that will enable sponsors to present long-range airport plans and permit earlier programming of each year's authorization.

The Washington National Airport, operated by CAA, established a record for the seventh consecutive year with a scheduled airline passenger volume of 3,404,302, an increase of 18.6 percent over the previous year. The total of 212,694 aircraft movements, an increase of 6.5 percent over fiscal 1954, set a record for the fourth consecutive year. During 1 period of 16 consecutive hours under instrument flight conditions, an average of 50 movements an hour was handled by the airport tower. The operational capacity under these conditions, even with radar, was expected to average 40 movements.

A 550-foot "finger" constructed at the airport added 5 additional gate positions.

Planning, Research, and Development

Many important studies were published by the Office of Planning, Research, and Development, including *The Airplane at Work for Business*

and Industry, CAA Statistical Handbook of Civil Aviation, and Federal Airways Air Traffic Activity.

Progress was made in the Aviation Incentive Movement, which is designed to interest the youth of America in aviation careers. Close coordination continued with the military services on proposed legislation to authorize the flight training of members of the Reserve Officers Training Corps.

Gains were made in simplifying regulations and procedures which impeded international air travel. The program received Presidential endorsement and support which stimulated all departments of the Government to greater efforts in promoting international travel.

The dynamic air traffic control simulator at the Technical Development and Evaluation Center in Indianapolis was used to develop an improved air traffic control system for the Chicago area when the second civil airport is placed in operation. The system, using radar techniques, will permit a large increase in air traffic flow in that area.

The Cincinnati Air Route Traffic Control Center was moved to Indianapolis to complete the installation phase of the Airways Operations Evaluation Center. This side-by-side arrangement of an operating and an experimental center will permit the evaluation and implementation of new air traffic control procedures and equipment on a more expeditious basis.

The development center's analyzer for determining the effectiveness of an aircraft fire extinguishing system in flight was applied to the B-36 airplane with satisfactory results. Facilities were erected at the center for the conduct of full-scale fire tests on helicopters and for the investigation of explosion hazards associated with jet engine installations.

International Operations

Having accepted responsibility within the Air Coordinating Committee for leadership and coordination in the technical field, CAA continued to furnish major support to the International Civil Aviation Organization in its technical activities, both in day-to-day work and by participation in United States delegations to ICAO meetings.

Foreign markets for United States manufactured flight and ground equipment were broadened through CAA participation in the Foreign Operations Administration Technical Assistance Program and directly through CAA personnel abroad. Twenty FOA-CAA Missions and Groups with a total personnel complement of 56 specialists were in operation or being planned in 19 countries during the year.

Worldwide application of a common system of air navigation aids was furthered by the maintenance in Europe of a DC-3 aircraft and an electronic laboratory available to other governments for checking ground and airborne electronic components of the system.

Assistance in planning and establishing civil aviation administrations, regulations, and airline operations was given to many foreign countries and airlines.

Important Court Decision.

Perhaps the year's most important legal decision affecting aviation was in the *Cedarhurst* case, where the validity of Government regulations was upheld on the basis that Congress preempted the air space necessary for the flight of aircraft. Here, an ordinance of the village of Cedarhurst, New York, restricting low-altitude approaches to New York International Airport, was voided as being in conflict with the paramount Federal authority to regulate minimum flight altitudes.

Information

The Office of Aviation Information inaugurated a series of "Profiles" of representative CAA employees and the interesting and useful work they are doing. These were widely printed and have served several purposes—public education, employee morale, and recruitment.

CAA's priced publications, issued only to meet needs not served by private publishers, brought the Treasury \$194,977, an increase of 16 percent over fiscal 1954.

The exhibit "History of Flight," displayed in Washington, attracted 12,000 visitors from all over the United States and foreign countries.

Training

The CAA Aeronautical Center in Oklahoma City graduated 1,185 aviation technicians during the year, an increase of 23 percent over 1954. Of these, 709 were CAA employees, 380 were from the United States Air Force, 14 from the United States aviation industry, and 3 from other Federal agencies, and 79 were industry, civil, and military technicians of friendly foreign countries. This training is designed to increase technical knowledge and impart uniform operational techniques and procedures.

General Services

A cooperative study by the Office of General Services and the Office of Federal Airways on electronic tubes for the airport surveillance radar systems resulted in a program that will save \$100,000 a year.

DEFENSE AIR TRANSPORTATION ADMINISTRATION

The Defense Air Transportation Administration is responsible for planning and directing the mobilization of United States civil aviation resources for effective utilization in the event of war.

One of DATA's major accomplishments has been the allocation of air-lift between the Civil Reserve Air Fleet (CRAF) for direct support of the military in time of war and the War Air Service Pattern (WASP) in continued commercial operation to carry war-essential traffic under an air priorities system. This allocation is kept revised by periodic adjustment

for changes in the Nation's war plans, essential industry needs, and changes in the inventory of aircraft.

The latest CRAF allocation of 317 four-engine aircraft includes approximately one-third of the total airlift of the civil airlines, to be operated under contract by the civil airlines in direct support of the Military Air Transport Service on 48-hour notice, using civil aircraft, personnel, and maintenance facilities. The aircraft in the CRAF are valued at more than \$425 million. The joint efforts of DATA, USAF, and the airlines have resulted in detailed operational plans and essential stockpiles, embodied in a military emergency war plan.

The WASP is the portion of the total airlift of the civil air carriers which will be required for the war economy. Plans have been made to carry only essential air traffic, based upon an air priorities system with policies jointly determined by DATA and the Department of Defense.

DATA further developed its plans for the civil defense use of scheduled and nonscheduled airline aircraft and noncarrier transport-type aircraft. Such requirements for airline and military transport aircraft will be met though the air priorities system; private and corporation transport-type aircraft will be utilized through the national emergency defense airlift plan.

DATA is the delegate agency making recommendations to ODM on accelerated tax amortization necessity certificates for commercial transport aircraft. On DATA's recommendation, the interim goal for 600 transport aircraft, which was filled in November 1954, has recently been increased to 900 aircraft which must be on firm order by December 31, 1955.

MARITIME ADMINISTRATION

The Maritime Administration is responsible for fostering the development and maintenance of an American merchant marine sufficient to meet the needs of the national defense and of the domestic and foreign commerce of the United States. Its functions include the construction, repair, and operation of merchant ships, maintenance of national defense reserve fleets of Government-owned ships, administration of operating and construction differential subsidy programs and other Government aids to shipping, maintenance of reserve shipyards for ship construction in national emergencies, training of merchant marine officers, and administration of a grant-in-aid program for State maritime academies.

In carrying out its responsibilities, the Administration is guided by the declaration of policy set forth in title I of the Merchant Marine Act of 1936, as amended.

Several important steps were taken during fiscal 1955 in line with the above objectives. Of particular significance were an accelerated ship construction, conversion, and repair program and the development of new ship designs and propulsion systems for new construction and adaptation to existing ships.

In providing assistance to the maritime industry, the Maritime Administration continued its adherence to the basic principles of promoting a privately owned and operated American merchant marine and of keeping the extent of Government participation to the minimum required for the country's economic and national defense needs.

Construction and Operating Aid

Negotiations were completed for the construction of two passenger-cargo vessels for Moore-McCormack Lines, Inc. This is the first step in the replacement of the "Good Neighbor Fleet," as required under the provisions of the operator's subsidy contract. The Federal Maritime Board granted construction-differential aid for the reconstruction of four Mariner-class ships purchased by the American President Lines, Ltd. In addition, there were pending at the close of the fiscal year applications from 4 operators for construction-differential aid in the construction of 6 new passenger-cargo vessels and the conversion of 3 Mariner-class ships.

Contracts were entered into with 3 companies for the trade-in of 14 obsolete tankers as credit allowance to be applied against the construction of 6 new tankers. Still under consideration was another application involving trade-in of old tankers and construction of 2 new tankers.

No new operators were awarded operating-differential subsidy contracts, and excellent progress continued to be made in clearing up the backlog of operating-differential subsidy rates applicable to the postwar period. There was approved a modification of procedure for establishing these rates which will enable the Government to meet its subsidy obligations to the shipping industry on a virtually current basis in the future. A total of \$324,508,774 in net advance subsidy payments had been made for subsidized operations through calendar year 1954.

Public Law 781, 83d Congress, gave impetus to private financing of new ship construction by making more attractive to the shipping industry the mortgage insurance aid provisions of the Merchant Marine Act of 1936, as amended. A number of applications were filed under this law, and four were approved in principle.

Of particular significance in the field of oceangoing traffic was the enactment of Public Law 664, 83d Congress, which provided for at least 50 percent participation of United States privately owned ships in the movement of Government-financed cargoes to the extent that such ships are available at fair and reasonable rates. Surveillance was maintained over the provisions of this law.

Operation of Ships

During the fiscal year, the number of privately owned ships of 1,000 gross tons or over in the United States merchant fleet declined from 1,224 to 1,101. In terms of deadweight tonnage, these ships represented 11 percent

of the tonnage in the world's merchant fleets as compared to 12.5 percent at the end of the previous year.

The operation of merchant ships by general agents for Government account declined to a low of 11 ships by February 1955. At that time, 26 additional ships were placed in operation to meet the requirements of the Military Sea Transportation Service. At the end of the fiscal year, 72 Maritime Administration-owned ships were in the custody of other Government agencies and 26 were under bareboat charter to private operators.

As of June 30, 1955, there were 2,068 ships in the national defense reserve fleets, having a replacement value of approximately \$8 billion. The ship preservation program progressed steadily, with 94 percent of basic lay-up and protection work completed. Protection of the underwater surfaces of hulls had also been completed for 1,542 of the ships.

At the request of the Department of Agriculture, 90 additional reserve fleet ships were made available for the storage of surplus grain, bringing to a total of 407 the number of ships authorized to be used for this program. At the end of the year, 355 of these ships had been loaded with approximately 81 million bushels of grain.

Shipbuilding and Repair

In the course of the year, 13 ships were under construction and 5 ships were being reconverted in various shipyards under Maritime Administration contracts. Ships under construction included the last 4 of a total of 35 Mariner-class ships, 3 of which were delivered during the year; 2 refrigerated stores ships and 3 tankers for the Department of the Navy; and 4 tankers contracted for under the program for trading in obsolete tonnage for allowance of credit against new construction.

By the end of the year, conversion work had commenced on 4 of the 9 Mariner-class ships sold to private operators and on another Mariner for the Department of the Navy. In addition, a contract was awarded for the construction of one roll-on/roll-off cargo ship for the Department of the Navy.

Another program well under way was the Liberty ship conversion program, involving the installation, on an experimental basis, of hull modifications and new propulsion units on 4 ships for the purpose of improving their speed and cargo-handling features. Contracts were awarded for the conversion of 2 ships—1 to steam turbine and another to geared diesel engine power—and also for the manufacture of an open cycle gas turbine propulsion unit and a free piston generator-gas turbine propulsion unit.

In anticipation of the use of nuclear power in merchant ships, contracts were entered into with a private design agent and a leading university with research experience in this field for a study of the technical and economic feasibility of the application of nuclear power to merchant ships.

In view of the impending block obsolescence of America's privately owned and operated merchant fleet, preliminary new ship designs were developed as a basis for establishing the characteristics desirable in our future merchant marine. This program included 7 designs of ships: 4 types of cargo vessels, a bulk carrier, a tanker, and a trailer ship.

Allied with the ship construction programs has been the emergency ship repair program, authorized by Public Law 608, 83d Congress, the purpose of which is to place reserve fleet ships in a state of greater readiness in the event of national emergency and maintain activity in the country's ship repair yards. During the year, 90 Navy auxiliary-type ships were withdrawn from the reserve fleets and 64 of these were completed, at a total cost of \$4,096,476.

Ship Sales and Transfers

The SS *President Cleveland* and SS *President Wilson* were sold to the American President Lines, Ltd., for the sums of \$6,346,262.50 and \$6,318,087.50, respectively, under the authority of Public Law 553, 83d Congress. Four Mariner-type vessels were also sold to the same company at a total sales price of \$17,686,687.36.

A sales contract was entered into with Pacific Far East Lines for the purchase of 3 Mariner-type vessels. The preliminary sales price on 1 of these vessels was \$5,750,000 and on the 2 others \$5,700,000 each.

Applications were approved pursuant to sections 9 and/or 37 of the Shipping Act, 1916, as amended, for the transfer to foreign ownership and/or registry of 144 United States flag ships of 1,000 gross tons or over. Of these, 11 were approved for transfer in consideration of the construction of new tonnage, or rebuilding of existing tonnage, in the United States.

During the early part of fiscal 1955, the Maritime Administration's policy was amended to permit, under certain conditions, the transfer of a limited number of Liberty-type dry cargo vessels to Panamanian, Liberian, or Honduran registry, with ownership remaining in United States citizens. This policy was rescinded on December 17, 1954, by which time a total of 69 ships had been approved for transfer.

Maritime Training

During the fiscal year, 127 men were graduated from the U. S. Merchant Marine Academy, Kings Point, N. Y., and 253 from the State maritime academies maintained by the States of California, Maine, Massachusetts, and New York. These graduates received United States merchant marine officers' licenses as third mates or third assistant engineers of oceangoing ships, bachelor of science degrees, and commissions as ensigns in the U. S. Naval Reserve and the U. S. Maritime Service.

Property and Supply

The maintenance and security program was continued at four Government-owned reserve shipyards. Permits and leases were granted or continued to other agencies or private organizations for the use of substantial portions of the land, structures, and equipment at these shipyards and at two terminals.

Prior to the fiscal year a sizable portion of the reserve training station at Sheepshead Bay, N. Y., had been declared to the General Services Administration as excess to the needs of the Maritime Administration. During fiscal 1955 a revocable permit was granted to the Department of the Air Force for the use of the balance of the station.

Financial Activities

A revised accounting system for the Maritime Administration was approved by the Comptroller General of the United States.

There was recovered from underwriters, under the recapture provisions of World War II Wartime Hull and Protection and Indemnity Agreements, a total of \$1,550,000, bringing the total of such recoveries to \$60,275,000.

The number of claims arising primarily from the wartime activities of the former Maritime Commission and War Shipping Administration was further reduced to 874, with a claimed value of approximately \$17 million. In addition, there were 890 claims with the Department of Justice for litigation in the amount of \$328 million.

Legislation

Most legislative proposals made during the year were based on recommendations contained in the *Review of Maritime Subsidy Policy*, submitted to the Congress. Included was draft legislation for research and experiment in cargo-handling practices and facilities on shore and ship, test operations of reconstructed Liberties and other vessels, and a number of other proposals to strengthen the privately owned merchant fleet and shipbuilding industry.

Other proposals included recommendations for extension of the Marine War Risk Insurance Act and for the sale of certain vessels to Philippine citizens. These were later enacted into law.

The bill to establish the Merchant Marine Academy on a permanent basis passed the House and was pending on the Senate Calendar at the end of the fiscal year.

Other Activities

In the regulatory field, close watch was kept over the sudden and unexpected rise in conference freight rates which began in the fall of 1954, in order to assure that the increases did not place an unwarranted burden on the conduct of trade.

The Maritime Administration continued to cooperate with the Department of State in negotiations with foreign governments on discriminatory practices against United States shipping, and in providing training for foreign trainees in the maritime field. Close liaison was maintained also with United States representatives serving with the Organization for European Economic Cooperation, to ensure adequate presentation of United States shipping policy before the Maritime Transport Committee of that organization.

Under the terms of the Mutual Security Act of 1954, steps were taken to procure up to a maximum of eight C1-MAV1 vessels for transfer to Korea and to establish a training program for the Korean crews.

BUREAU OF PUBLIC ROADS

For many years the Bureau of Public Roads has been the principal road-building agency of the Federal Government. Reflecting the prime significance of highway transport, the Bureau's functions embrace a wide range of engineering, administrative, and research activities in this field. It supervises the expenditure of funds authorized to aid the States in highway improvement and supervises highway construction in national forests, parks, and parkways. Upon request it furnishes highway engineering assistance to other Federal agencies.

A long-held objective of the Bureau is to assist the States in planning and developing a system of highways adequate for the Nation's needs. The general character of this cooperation with the States is fixed by law, but decades of experience with highway problems from coast to coast has enabled the Bureau to focus its research and engineering efforts on the most essential aspects of highway improvement and traffic control.

During fiscal 1955 the Bureau cooperated with the States in planning and carrying out a record volume of highway improvement. In addition, the Bureau participated in the most comprehensive study of highway needs ever undertaken.

Motor vehicle registrations, urban and rural traffic volumes, and highway congestion all reached new peaks. The number of motor vehicles was expected to total more than 61 million by the end of 1955—a gain of 2.75 million in 12 months. Mileage traveled on streets and roads increased 3.7 percent in the fiscal year.

Highway improvement went forward at a rate which made the year outstanding in physical accomplishment. The huge volume of work, however, was overshadowed in the public mind by the much greater mileage of improvements still needed to reduce congestion, delays, and accidents.

The President in July 1954 focused attention on the urgent need for major highway improvement throughout the Nation and proposed that it be accelerated. He appointed an advisory committee to consider various

approaches to the problem and work in cooperation with a special committee of the Governors Conference. The Bureau assisted these groups by supplying background data and technical advice.

As directed by the Federal-aid Highway Act of 1954, the Bureau, with the cooperation of the States, prepared a report on highway needs which estimated the cost of construction required to modernize the Nation's roads and streets in a period of 10 years at \$101 billion, of which \$23 billion was for the national system of interstate highways, \$30 billion for the remainder of the Federal-aid primary system, and \$15 billion for the Federal-aid secondary system.

The information and recommendations developed in these studies enabled Congress to begin careful consideration of legislation looking toward a greatly enlarged program of highway improvement.

Under the provisions of the Federal-aid Highway Act of 1954, the Bureau launched a new plan for administration of the Federal-aid secondary or farm-to-market road program which greatly simplifies procedures by relieving the Federal Government of much of its engineering and administrative responsibility. The plan involves Bureau acceptance of certification by the State that projects have been completed in accordance with standards and procedures previously prepared by the State and approved by the Bureau. By the end of the fiscal year, 31 States had adopted the new plan.

Federal-Aid Program

To accelerate the highway improvement program, the Federal-aid authorization of \$875 million for fiscal 1956 was apportioned to the States on July 1, 1954, 6 months ahead of the time limit set by Congress.

Completions of all classes of Federal-aid projects during the fiscal year accounted for the improvement of 22,155 miles of roads—an increase of 1,166 miles over the previous year. Included were 6,050 miles of highways and 1,202 bridges on the Federal-aid primary system outside of cities; 842 miles of highways and 465 bridges on urban portions of the Federal-aid primary system; 14,692 miles of roads and 1,764 bridges on secondary roads; and 571 miles of highways in national parks, forests, parkways and flood-relief projects. Railway-highway grade crossings were eliminated at 216 locations, and 317 crossings were protected by installation of improved safety devices.

Federal-aid highway improvements in urban areas have increased gradually over a 10-year period, reaching almost \$500 million during the fiscal year. In selecting urban projects for Federal aid, every effort was made to eliminate traffic bottlenecks by construction that provided greater traffic capacity. Expressways were under construction in more than 100 cities. Construction of circumferential routes near the outskirts of metropolitan areas has been started at Boston, Louisville, Baltimore, and other cities.

This will permit a free exchange of traffic between radial routes without passing through the more congested areas.

Many of these cities are located on the national system of interstate highways, a network which links business and industrial centers from coast to coast. This vital system, essential to production, distribution, and defense, was authorized by Congress in 1944, with a 40,000-mile limit. The system is a part of the larger Federal-aid primary system. Some 37,700 miles of routes were selected by the States and approved in 1947. At the end of the fiscal year, selection of the remaining 2,300 miles was underway. These additions will all be in and around urban areas.

Built to high standards, with provision where needed for divided highways, improvements on the interstate system have been financed largely with regular Federal-aid primary or urban funds matched by State funds. However, progress has been far below the rate required to provide these urgently needed facilities. This fact was clearly recognized both in the report on highway needs and in legislative proposals put before the Congress. Clearly recognized, too, was the imperative need for full access control on all arterial highways.

Reports to Congress

Four separate reports were submitted to Congress during the year. The report on highway needs has already been mentioned.

A report on the feasibility of toll roads concluded that 6,900 miles of highways feasible as toll roads lie almost entirely on the interstate system. Continuance of the law prohibiting collection of tolls on roads built with Federal aid was recommended, but it was proposed that toll roads built to satisfactory standards be included in the interstate system if a satisfactory alternate free Federal-aid route exists.

A study of public utility relocation incident to highway improvement was also delivered to the Congress.

At least 36 separate enactments have modified the laws governing Federal-aid programs since the original Road Act of 1916. The Bureau made a thorough analysis of all these enactments and included in a report to Congress a draft of a proposed new "one package" law.

Research Activities

The Bureau advanced its studies of highway finance, highway transport, and the array of physical problems that are associated with highway construction. As in previous years, the research program was shaped by the actual needs of modern highway practice.

The Bureau continued to cooperate in the extensive road test of bituminous pavements conducted by the Western Association of State Highway Officials. It looked forward to participation in a road test of even larger scope being undertaken by the American Association of State Highway Officials and other cooperators.

For several years the Bureau has worked for recognition of the need for coordinated consideration of publicly financed highway development programs and navigational improvements. The general public ultimately bears all transportation costs, and greatly increased overall efficiency and economy can be effected by weighing together highway and navigation traffic needs in planning bridge clearances on inland and intracoastal waterways.

WEATHER BUREAU

In addition to forecasting daily weather changes affecting all parts of the United States and adjacent waters, the United States Weather Bureau is charged with the responsibility of observing, recording, and reporting the conditions of weather and climate and the stages of rivers and floods that affect the safety of life and property or are vital to the basic economy of the United States.

Each passing year brings further public endorsement of the importance and value of modern forecasting services for the protection and economic advancement of the American people. Each year also brings additional demands for more detailed services in special fields of activity or in particular areas of the country. Much of the new work of the Weather Bureau during fiscal 1955 was devoted to meeting the most urgent of these service demands within available resources. At the same time, much progress was also made in improving its hurricane, tornado, and severe storm warning services.

The variations of weather and water become important to the Nation, as well as to the individual citizen, when they bring unnecessary loss of human lives, widespread damage to property, destruction of crops, loss of ships and aircraft, and countless other unexpected burdens to the daily plans and activities of millions of people.

Hurricane Warning Services

The record occurrence during the autumn of 1954 of three tropical storms affecting the Atlantic Coast States focused public attention on the Weather Bureau's hurricane warning services and the action taken to develop more complete warning services for all coastal areas. Some of the improvements include:

Establishment of emergency warning centers at major Weather Bureau stations along the coast.

Installation of special teletypewriter and telephone connections for rapid contact between forecasters and all coastal offices.

More frequent hurricane reconnaissance flights by Department of Defense aircraft.

Completion of arrangements for flying weathermen from inland stations to storm-threatened areas for emergency duties.

Installation of a high-powered radar station at Cape Hatteras, N. C., which can detect and track hurricanes as far as 250 miles away.

Installation of new weather chart facsimile equipment which provides additional weather charts to major Weather Bureau stations along the coast.

Expanded high-water warning service for the entire Atlantic coast, including nearby bays, inlets, and rivers.

Initiation of a cooperative hurricane information program to insure better public understanding of hurricanes and the warning services.

The future program for additional hurricane service improvements includes stepped-up research activities to find out more about the behavior of hurricanes, enlarged professional staffs at forecast centers, more observations from ocean areas, still further improved communication facilities, and additional radar storm-tracking stations in coastal areas.

Tornado Warning Services

The accuracy of tornado forecasts increased considerably over preceding years. Improved tornado forecast services were made possible by new radar stations and an expanded volunteer observation network. The public has credited the Weather Bureau with considerable saving of lives and much reduced public apprehension during the past tornado season.

The Weather Bureau's expanded tornado warning educational program proved effective, and enjoyed the cooperation of many organizations in disseminating information about available forecast services and the safety precautions to be taken during critical tornado periods.

The future program for improved tornado forecast services includes the installation of additional radar stations, further extension of observation networks, installation of rapid teletypewriter collection systems for special reports of severe storms, and concentrated research and development in observation equipment and in forecasting techniques.

Local Severe Storm Warning Services

In addition to hurricanes and tornadoes, there are other types of severe weather occurrences throughout the United States that require special attention by the Weather Bureau. These include thunderstorms, gales, blizzards, flood-producing rains, ice storms, sudden cold waves, and abrupt changes in weather conditions of local significance.

The forecasting unit for severe local storms was moved from Washington, D. C., to Kansas City, Mo., to place the forecasters closer to the area most frequented by these storms.

The Weather Bureau enlarged its volunteer severe weather report distribution system throughout the country as another step toward providing all concerned with adequate advance notice of severe weather changes and thereby contributed to maximum storm protection to citizens in every county in the United States.

State Forecast Offices

An important step toward improved daily forecasts of tomorrow's weather was the Weather Bureau's program for the establishment of State forecast offices to replace or supplement district forecast centers which now forecast for large regions covering several States. With a reduced area of responsibility, the forecaster will be able to give more attention to locally important details than would be possible in the brief analysis time allotted to a forecaster responsible for four or five States.

Forecast offices were established in North Carolina, New Mexico, New York, Pennsylvania, Maryland, Iowa, and Oklahoma. Plans were being developed to extend this forecast program into all other States as fast as the availability of funds and qualified personnel will permit.

Hydrologic Services

Emphasis continued to be placed on the extension of modernized river forecast methods and procedures to new drainage areas.

An important new development was the issuance of flood warnings on the basis of heavy rainstorms tracked by radar observations. Experimentation continued on the use of radarscope photographs for estimates of drainage basin rainfall that could be used for flood-forecasting purposes.

On-the-site evaporation studies were continued and new techniques were advanced for estimation of evaporation for meteorological data.

Rainfall intensity frequency studies were completed for 200 Weather Bureau stations. The public roads project for extension of flood frequency records by applying rainfall-runoff forecast relations to the longer rainfall records was continued and expanded.

Special meteorological studies were conducted for the Corps of Engineers to provide guidance for the design of levee heights along the Mississippi River.

Climatological Services

Procedures on the processing and publication of climatological data were streamlined and made almost completely mechanized.

Special attention was paid to making climatological information more useful and more widely available to agricultural interests. The *Weekly Weather and Crop Bulletin* was expanded to double its former size and carried timely articles on applied meteorology and farm-weather relationships. Steady progress was made in the publication of past climatic data and State climatic summaries. Plans were laid for a series of climatic guides for the major cities of the United States.

A small bioclimatology section was set up in the Climatological Services Division to study the relations of climate to crops. Cooperative programs with State agricultural experiment stations and universities were underway in 14 States.

Plans were also made to give increased emphasis to climatological services in all States as rapidly as funds and properly trained personnel become available. In the field service, three of the five currently planned area climatologist positions were filled.

The Weather Bureau's Climatological Services Division is cooperating actively with the Division of Earth Sciences of the National Academy of Sciences in the preparation of climate information for its forthcoming atlas of national resources.

A special study of hurricane trends over the past 75 years was started, and several research projects on climatic data analysis were begun.

Plans were made for further development of high-speed data-selection procedures using punched cards, microfilms, and electronic computers.

Numerical Weather Prediction

The Weather Bureau, jointly with the Air Force and Navy, established a Numerical Weather Prediction Unit to develop methods for forecasting future weather patterns with the aid of rapid electronic computers. The high-speed electronic data processing machines used are capable of solving at incredible speed numerous complex mathematical computations which previously would have been impossible with human workers because of the millions of man-hours of calculations required. Testing of new-type forecasting procedures began with the delivery of the computer in March 1955. Results of daily operational forecasts which began shortly thereafter indicate a significant technical advancement.

National Weather Analysis Center

The Weather Bureau assumed full responsibility for the National Weather Analysis Center in the spring of 1955 with the move of the center from central headquarters at 24th and M Streets in Washington, D. C., to new enlarged quarters at Suitland, Md.

The National Weather Analysis Center, formerly jointly staffed with the Air Force and Navy, prepares the 58 analyzed surface and upper-air weather charts that are sent daily by facsimile to more than a hundred stations in all parts of the country.

Meteorological Instrumentation

Radar installations have proved of tremendous value in daily weather forecasting, particularly of hurricanes, tornadoes, and flood-producing rains; and are rapidly accumulating observed data of great significance in studies directed at an improved understanding of storm makeup and behavior. The installation of radar storm equipment to detect, analyze, and track precipitation areas up to 200 miles away proceeded as fast as funds, equipment, and available trained personnel permitted.

Plans include the placement of modern, especially designed storm radar equipment at suitable intervals along the entire Gulf of Mexico and Atlantic

coasts, and at other points in the United States where there is a high incidence of tornadoes and other severe storms.

Other significant progress in the rapidly developing field of meteorological instrumentation include:

- (1) Development of a sequential automatic system for broadcasting up-to-date weather information from low-frequency airway range stations.
- (2) Development of retransmitting wind equipment which can automatically report data over long-line telephone circuits.
- (3) Further developments in automatic teletypewriter weather reporting station equipment to improve its reliability and its capacity to report additional observation data.

Meteorological Research and Development

The Physical Research Division continued its fundamental studies of the physical properties of clouds and the processes by which they are converted to rain. A basic understanding of this vital weather process is necessary to advance the science of meteorology. Investigations of the electrification transferred to cloud droplets by atmospheric ionization show that electricity plays an important part in the coagulation of clouds.

The mechanical properties of falling cloud size particles and the rate of their association to form large raindrops have been studied. Quantitative measurements under carefully controlled conditions showed that current estimates are greatly in error and need fundamental revision.

Other research and development projects undertaken cover a wide field of basic and applied meteorological topics, including such samples as fire-weather research in a California forest; thunderstorms and jet stream research in Idaho and Montana; tornado research in Oklahoma; hurricane research in Florida; weather modification research in the State of Washington; and agricultural meteorology research in Kentucky tobacco fields.

Cooperation With Other Agencies

COOPERATION WITH ATOMIC ENERGY COMMISSION.—The Weather Bureau continued its broad cooperative program with the Atomic Energy Commission. Research was conducted on the effects of atomic explosions on the general weather of the country, but no significant correlation was determined. The program of collecting radioactive fallout at some 125 Weather Bureau locations throughout the United States continued and was expanded during atomic tests. Special fallout forecasts were prepared during these tests.

Research operational offices were operated at various AEC stations. Technical meteorological assistance was furnished in the general development of nuclear-powered aircraft and nuclear powerplants. The Weather Bureau continued to advise the Atomic Energy Commission on the general dispersal of radioactive effluents from reactors and other nuclear operations.

COOPERATION WITH FCDA.—The Weather Bureau worked closely with the Federal Civil Defense Administration on plans for utilizing meteorological data for predicting areas of fallout in the event of an attack. Arrangements were made to provide Weather Bureau liaison and consultant service to FCDA national and regional offices and to State civil defense directors.

The Weather Bureau undertook a program of routine daily preparation and dissemination of fallout data at selected upper-air wind observation stations throughout the country. Plans were also agreed upon with FCDA for research on improved methods of forecasting fallout areas, and for statistical studies of fallout probabilities in the neighborhood of presumed target areas, based on past high-altitude wind records. The role of the Weather Bureau in supporting civil defense at the national, State, and local levels was formalized in a delegation of authority to the Commerce Department by the FCDA which was approved by the President.

INTERNATIONAL GEOPHYSICAL YEAR PROGRAM.—The Weather Bureau actively participated in the development of the meteorological program for the international geophysical year, 1957–58, which involves establishment of meteorological stations in the Antarctic, including one at the South Pole. The Bureau sent two staff members on the icebreaker *Atka* which visited the Antarctic during the year in planning for the program of the international geophysical year.

Office of the Assistant Secretary for Domestic Affairs

The Assistant Secretary of Commerce for Domestic Affairs is the Secretary's principal assistant in fostering, promoting, and developing the domestic industry and commerce of the United States. Under the Secretary, his function is to assure that the domestic program and activities of the Department result in the fullest contribution to a sound economy.

The Assistant Secretary of Commerce for Domestic Affairs serves the business community in gaining proper representation of business views, opinions, and problems in governmental affairs.

Thus, the stability and growth of the Nation is promoted through the maintenance of a proper economic environment in which free competitive enterprise may start, grow and prosper.

That program emphasized the policymaking and guidance of the Business and Defense Services Administration, Office of Field Services, Office of Technical Services and its Area Development Division, Office of Business Economics, and Bureau of the Census.

Censuses of business, manufactures, mineral industries, and agriculture were taken. This was the first complete census of business in 6 years. Data compiled in that census is critically needed by American business for marketing, management and development. Since the last census of business the Nation's population has grown by more than 20 million people, and business has shown its greatest growth in history. Greatly improved methods and procedures developed by the Department of Commerce during the past year will expedite publication of the results to meet the urgent demands of business.

The scope of area development activity relating to labor surplus areas was widened to increase the effectiveness of Federal assistance in that field.

Under the policy direction of the Assistant Secretary, vital contributions were made to the solution of problems of critical resources and materials. This activity, vital to maintaining a prosperous economy and high standard of living, deals with problems of certain shortages such as copper, nickel, steel, and other critical materials and resources.

His planning contributed to diminishing Government competition with private enterprise. The policies of his office have resulted in acquainting the American businessman, on an ever-increasing scale, with the services of the Department of Commerce.

BUSINESS AND DEFENSE SERVICES ADMINISTRATION

The year ended June 30, 1955, marked the second year of operations of the Business and Defense Services Administration, which was established on October 1, 1953. As the successor to the National Production Authority, the new BDSA continued to carry the major load of the Department's responsibilities under the Defense Production Act of 1950, as amended. In addition it continued to carry forward a large share of the Department's statutory responsibilities for fostering and promoting a sound and expanding national economy.

Substantial progress was made on the programs previously developed to carry out these responsibilities. These programs centered in actions in support of current defense production and long-range industrial mobilization planning under the general guidance of the Office of Defense Mobilization, and in service to industry and business. Details regarding BDSA's defense activities will be found in the 1955 annual report of the Joint Committee on Defense Production. These activities and those relating to business services are briefly summarized below.

Defense and Mobilization Preparedness Activities

SPECIAL ASSISTANCE FOR MILITARY AND ATOMIC ENERGY PROGRAMS.—Pursuant to delegations of authority under the Defense Production Act, as amended, BDSA continued the channeling of essential scarce materials

in support of the current military and atomic energy programs. A total of 1,776 special assistance cases were processed during the second quarter of 1955 as against slightly over 1,500 cases processed during the second quarter of 1954. This increase in priorities actions was attributed to expansion of certain atomic energy programs. Areas of tight supply which continued to require special assistance were electrical and electronics equipment, scientific instruments, machine tools, general components, and high-alloy metals.

OPERATIONS OF THE DEFENSE MATERIALS SYSTEM.—The year ended June 30, 1955, provided the first major test of the effectiveness of the Defense Materials System (DMS). Continuing defense demands, added to unprecedented levels of domestic civilian economic activity, resulted in heavy pressure on the basic metallic industries. In some cases, these demand sources were supplemented by high foreign demand for both metal and scrap as well as by demands of the United States stockpile program. Special actions to make available to domestic civilian industry scheduled additions to the nickel, copper, and aluminum stockpiles reflected the heavy pressure on the supply of these metals during the year.

One of the important considerations that led to the establishment of the Defense Materials System in 1953 was the necessity for assuring the completion of Department of Defense and Atomic Energy Commission production and construction programs on schedule. This principle applied with equal force to both a cold war and a hot war situation. Despite the short supply of a number of materials, defense contractors without exception were given preferential treatment by suppliers. The exercise of title I authority of the Defense Production Act, through the promulgation of DMS regulations, contributed substantially toward the goal of maintaining defense production at scheduled levels.

Although DMS proved effective, efforts were made to improve its operations. A handbook *The Defense Materials System in Our American Industry*, for use by the Department of Defense and AEC contractors, was published and distributed widely to the trade press and to trade associations. This publication contributed to the greater use of ratings and program identifications by purchasers of production and construction materials for defense programs.

In the event of attack, BDSA is prepared to carry out the Defense Materials System in order to marshal quickly the remaining industrial resources for retaliatory purposes. As an industrial mobilization readiness measure, BDSA initiated a program to develop a series of standby orders and regulations. These orders and regulations will provide the framework for immediate implementation of the DMS production and construction control system in the event of a future emergency, and will provide the basis for maximum utilization of our total national resources for retaliation against an aggressor in the event of attack.

Progress was made also on the programs described in the Department's report for fiscal 1954 with respect to mobilization requirements, mobilization base deficiency studies, industrial defense, accelerated tax amortization, and stockpiling.

Business Service Activities

In addition to its defense and long-range mobilization preparedness activities, BDSA engaged in a continuing program to assist civilian enterprise. Its work in this area assisted industry in attaining and holding its present all-time peak position of productivity.

COMMUNICATIONS WITH INDUSTRY.—In cooperation with the Small Business Administration, BDSA established a new publications program designed to provide a regular flow of statistical and economic trend information between Government and the business community. This program included a business service bulletin series, information reference lists, summary information on products and practices, trade operating ratios and capital requirements work sheets, and a series of industry reports on major industries.

The systematic flow of information and guidance from business was accomplished through such groups as the National Distribution Council, trade and professional associations, and industry advisory committees. Wide distribution of this information is made through the 33 field offices of the Department, over 5,000 local chambers of commerce throughout the United States, the 44 field offices of the Small Business Administration, and the trade press.

ECONOMIC IMPACT STUDIES—SURPLUS PROPERTY DISPOSAL.—In cooperation with the General Services Administration and the Department of Defense, BDSA provided a market testing and consultative service in connection with the domestic disposal of Federal surplus property. Through a cooperative working agreement, the Department of Defense furnished BDSA with daily reports of items determined to be in excess of the needs of the Armed Forces. These reports were appraised on a cumulative basis, and whenever the quantities or frequency of an item's appearance justified, or whenever the Assistant Secretary of Defense for Supply and Logistics requested, such action, BDSA conducted market studies to determine the current effect of sales of surplus on dealer inventories, market stability, employment at factories, and other aspects of industry. These studies have been useful to the Department of Defense in planning disposal. Improved disposal methods have been suggested frequently, such as stretch-out of sales, continued storage, or shifting to other market locations.

ASSISTANCE TO SMALL BUSINESS.—Through its 25 industry divisions BDSA provided useful data and individual assistance to smaller concerns. This assistance covered such matters as securing materials and equipment; presenting applications for tax amortization for production expansion;

developing and using new processes and substitute materials; and developing and selling new products to take up the slack in expanded capacity. The publications program previously mentioned was useful in aiding small business. The cooperative work of the field offices of the Department and the field offices of the Small Business Administration proved helpful to small business enterprises throughout the country.

FISCAL AND TAX POLICY REVIEW.—The Department of Commerce, through BDSA, maintained a continuing review of Government policies and practices in the areas of finance and taxation. The general tax structure and the overall tax legislation program were carefully studied and discussed with qualified businessmen with a view to stimulating industrial growth.

Industry-Government Cooperation

Pursuant to the provisions of the Defense Production Act, BDSA made wide and effective use of various types of industry meetings in connection with defense and mobilization programs during the year. Approximately 100 such meetings of all types were held. These included industry advisory committees, industry conferences, special conferences, and industry task groups. All meetings were concerned in whole or in part with BDSA's operations under the Defense Production Act and the National Security Act.

The industry executive (WOC) program, as authorized under the Defense Production Act, continued as in previous years to be of great assistance in carrying out the current defense program. As of the end of the fiscal year, about 155 executives from private industry were serving BDSA without compensation. Of these, about 29 were serving on a full-time basis while the remainder were on call for part-time service as needed.

OFFICE OF FIELD SERVICES

Increased reliance by the business public on the services of the field offices of the Department characterized the activities of the offices throughout the year. Located in 33 important commercial and industrial centers throughout the United States, the offices serve as local points of contact between the Department and manufacturers, retailers, wholesalers, exporters, importers, and other service and industrial groups.

Utilizing the publications, reports, studies, and facilities of the Bureau of Foreign Commerce, Business and Defense Services Administration, Office of Business Economics, and the Bureau of the Census, the offices provide a wide range of services in the promotion of foreign and domestic trade, industrial development, and economic research.

Special attention was devoted to assisting small and medium-size businesses in the field of marketing and distribution by providing factual data on which they could make sound decisions on trade channels and territories, sales prospects, and market changes due to population shifts, industrial

production, and income distribution. Increased use was made of the reports of the Office of Technical Services on a number of production problems and the development of new products. In like manner there was great interest in Federal procurement and the purchase of Government surpluses, as indicated by the new high point in subscriptions reached by the daily *Synopsis of U. S. Government Proposed Procurement, Sales and Contract Awards* published by the Office of Field Services.

The high level of export and import trade stimulated constant use of the facilities of the field offices, especially by the smaller firms, due to the ever-changing conditions in the foreign markets for American products and the sources of supply of raw materials and manufactured goods imported from abroad.

Personnel from a number of the field offices participated in the trade fair program as members of trade information missions, which were manned by Government and business representatives in a joint undertaking to provide factual information on the United States as a market and as a source of supply of goods required by foreign countries.

Another joint enterprise between Government and business which continued to provide favorable results was the cooperative office program in which more than 800 chambers of commerce and similar organizations utilize published material and the services of the field offices in providing assistance on business matters in their local communities. This program enabled the Department to reach a greatly increased segment of American business with its services.

OFFICE OF TECHNICAL SERVICES

This office collects scientific and technical information for dissemination to business enterprises; helps industries develop and agree upon commercial standards as to quality, testing, and ratings; serves as the point of contact with trade associations and other nonprofit trade groups for the purpose of encouraging their cooperation and obtaining recommendations with respect to the domestic commerce programs and activities of the Department; and brings to the attention of American inventors the technical problems of Government agencies.

In the 1955 fiscal year it also worked with State, regional, and local planning and development groups in studying the economic problems and potentialities of an area, developing programs for making greater use of local resources, and expanding the industry and commerce of the area by making the data, skills, and experience of the Department available to such organizations.

TECHNICAL INFORMATION.—Unclassified and declassified technical information produced through Government-financed research is collected by this office and disseminated to industry.● Many businesses, small, medium, and large, have used this information in the development of new

products and processes and in making technological improvements. The volume of this tax-supported research continued to exceed \$2 billion a year, more than half of the Nation's total research. During the year 7,588 new Government research reports were added to the more than 250,000 in the OTS collection available to industry. Twenty-eight thousand requests were received for information about these reports, and \$191,000 worth of reports were sold at an average price of \$1.50 to \$2.00 per report (cost of printing and handling). Subscriptions to the OTS publication *U. S. Government Research Reports*, which describes 300 or more new reports of research each month, increased from 1,800 to 3,500 reflecting increased industry use of Government research data. OTS also publishes *Technical Reports Newsletter* which each month abstracts 15 to 20 new reports of research of particular use to small and medium businesses. OTS's staff of technologists answered 2,500 inquiries from industry for specific information to be used toward the solution of technological problems, and the Office continued to provide, under contract, technical information to the Foreign Operations Administration (now the International Cooperation Administration) for its program of assistance to Free World nations.

AREA DEVELOPMENT.—The Economic Report of the President for 1953 and the Report of the Joint Economic Committee of Congress recommended strengthening the area development program. As the program was enlarged, the Area Development Division assisted 240 communities in 42 States in initiating and carrying out industrial and area development programs involving technical guidance in securing new industry, and in expanding existing industry through new product development and product improvement. Special efforts were made to assist labor surplus areas by informing expanding industries of the location advantages of these areas and coordinating Federal agency assistance to area groups requesting Federal help. A number of important technical aids were published to implement the area development program. Particular attention was given to the small-business man. His contribution to community industrial development programs was evidenced by the important place given to new product development techniques. An example of this type of assistance is the products and processes exhibit held in Michigan—a pilot operation conducted with City of Detroit and State of Michigan development organizations as a means of stimulating product diversification. A survey of 269 of the 2,500 firms attending indicated that 61 of those surveyed were utilizing ideas obtained at the exhibit.

COMMODITY STANDARDS.—Assistance and cooperation with industry was continued in the establishment and promulgation of simplified practice recommendations and commercial standards. Nine simplified practice recommendations were completed, and progress was made on 13 requests from industry for the establishment or revision of recommendations. Of

special importance to a large and growing industry was the development of a recommendation establishing standard sizes of retail containers for 19 items of frozen fruits and vegetables. Another major accomplishment was the release to industry of a new system of sizing women's apparel, on which a committee of the industry had been working with this office for 5 years. Twelve leading trade associations cooperated in distributing copies of this proposed commercial standard and recommending its adoption.

TRADE ASSOCIATIONS.—Advisory service to the Office of the Secretary on policy matters pertaining to businessmen's associations was provided by this office, which is the Government center of information in this field. All field offices of the Department were furnished material supplementing the 700-page directory *National Associations of the United States*. A new edition of this publication, last issued in 1950, was under preparation. A study was also made of the 800 or so regional associations, and another was in progress on the 3,300 statewide organizations.

NATIONAL INVENTORS COUNCIL.—The council, Government agency for the evaluation of inventive proposals of a military nature, received and processed over 5,800 submissions made by the public during the year. In addition, industry, science, and the public were notified of the Armed Services' technical needs by the circulation of a list of problems compiled with the aid of the military establishment. This list contained 307 items, 176 of them new problems.

OFFICE OF BUSINESS ECONOMICS

With the Nation's economy setting new records in calendar year 1955, and certain to exceed the previous peak of total output established in 1953, the basic data originating in the Office of Business Economics have been utilized more widely than ever before. On the domestic side of the economy, OBE's business information centers around measures of the national income and product, including personal income and consumer expenditures. As to foreign economic transactions, it focuses on the United States balance of international payments, including a complete record of Government expenditures abroad.

The primary vehicle for dissemination of this timely economic intelligence is the monthly magazine *Survey of Current Business*, now in its 35th volume. The United States Chamber of Commerce has recommended the inclusion of this periodical in even a minimum private business library. Each month it provides to the businessman 40 pages of statistical indicators covering all lines of business, and newly arrived figures are furnished in a weekly supplement to keep the subscriber up to date.

Every 3 months the magazine contains the latest figures on the gross national product, generally regarded as the best measure of the value of the output of the economy. This provides a comprehensive statistical picture

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of the economic process in terms of the production of total output and its distribution among the major markets whose dynamics determine the functioning of the economy.

At longer intervals, sizable publications are prepared by the Office of Business Economics as major supplements to the *Survey of Current Business*. In fiscal 1955 a 249-page *National Income* volume, the authoritative and detailed record of movements in all sectors of the economy since 1929, was put on sale by the Superintendent of Documents.

OBE also sent to press the manuscript for a 349-page *Business Statistics* supplement providing an annual historical record back to 1929 for more than 2,600 individual statistical series and presenting monthly data for the most recent 4 years. In addition to 190 pages of statistical tables, the *Business Statistics* volume contains a 130-page section of comprehensive descriptions and explanations of all data appearing monthly in the *Survey of Current Business*. Definitions of the statistical units employed, indications of the adequacy of samples, methods of collection of data, and names and addresses of the various data sources are furnished.

A complete record of the United States balance of international payments back to 1919 was published as background material for the current data, which are issued quarterly by OBE. Of major importance in the conduct of the Government's foreign economic policies, this set of accounts serves a variety of purposes. For example, it shows whether foreign countries had an excess of dollar receipts over expenditures and were able to add to their gold and dollar holdings, or whether they had to supplement their receipts by drawing upon their reserves.

Special Data for Business

To keep close check on the changing structure of business entails the close scrutiny and measurement of monthly and quarterly developments in economic areas of critical importance. OBE therefore also worked intensively to gather and analyze specialized data provided by business and to distribute the results rapidly through releases for business use in keeping abreast of a fluid situation.

Business inventories were reported monthly for all manufacturers, wholesalers, and retailers. New and unfilled orders of manufacturers were similarly reported, paving the way for private company estimates of the trend of future business. Every 3 months, in conjunction with the Securities and Exchange Commission, OBE released estimates based on businessmen's reports of their intended outlays for new plant and equipment in the 6 months ahead. Similar information, covering the full year ahead, is reported annually.

The size and distribution of the business population, including the number of business entries and departures, was regularly recorded. The financial requirements of business, and the availability of capital to meet

these needs, were assessed to throw additional light on the rate of private enterprise growth.

Titles of articles selected from the *Survey of Current Business* issues during fiscal 1955 suggest the range and intensiveness of OBE activities:

- Growth Characteristics of the Economy
- Foreign Investments and Income
- State Distribution of Business Concerns
- Financial Experience of Manufacturing Corporations
- Saving in the National Economy
- Public and Private Debt
- Income Distribution in the United States
- The Housing Market
- Patterns of Recent Employment Changes.

Beyond its extensive publications program, designed to put information into the hands of users as quickly and widely as possible, OBE provided a range of services to a variety of Government organizations. Preeminent among these were the President's Advisory Board on Economic Growth and Stability and the Council of Economic Advisers. Others included the congressional Joint Committee on the Economic Report, the International Bank, the International Monetary Fund, and the five committees organized by the Federal Reserve Board to inquire into the utility of specialized economic statistics.

BUREAU OF THE CENSUS

The Bureau of the Census continued its role as a major data collecting and compiling agency for the Government, carrying out the further objective of providing statistical and technical services to business, industry, research groups, and the general public.

Further improvements in time schedules for the release of data and in reliability and comprehensiveness of the statistics were accomplished during the year. These results were achieved by extending the use of high-speed electronic equipment, applying quality-control techniques and scientific sampling methods, and adopting various types of improved procedures. The recommendations made by a group of management specialists who made a systematic survey of Bureau organization and operations resulted in a number of changes, including the establishment of a production planning and standards office, which carries out a work measurement program.

The 1954 Censuses

Conducting the 1954 censuses of business, manufactures, mineral industries, and agriculture was a major accomplishment of the year. The results of these censuses will fill a great need for information necessary for establishing sound business and Government policies, making com-

prehensive data on the Nation's economy available for the first time after a gap of from 5 to 16 years. Emphasis was placed on timely release of the most widely used data, with the result that these data will be available more promptly after the collecting operations than ever before. The Bureau was well into the processing stage by the end of fiscal 1955, with much of the basic information scheduled to be issued in the first half of fiscal 1956 and the great bulk of the remainder in the second half.

The census of business, last taken for 1948, covers activities of about 2,750,000 retail, wholesale, and service establishments. Its results will provide material essential to business planning and marketing operations. Statistics will be published for continental United States, Alaska, and Hawaii. Information will be presented for each of the 48 States, for each of the 170 standard metropolitan areas, for each of the more than 3,000 counties, and for each of the more than 4,000 places of 2,500 or more population. To the degree permitted under nondisclosure provisions of census law that safeguard against revelation of operations of individual establishments, these data will show, by kind of business, figures on number of establishments, yearly sales or receipts, number of paid employees and total payrolls, and number of active proprietors of unincorporated businesses. Trade reports presenting consolidated statistics for each of 20 related kinds of business groups and reports for each of the primary subjects covered in the census also will be issued. The latter will include credit, inventories and commodity line sales of wholesalers, form of ownership, sales size, city size, and other subjects.

The census of manufactures, last taken for 1947, covers activities of nearly 300,000 manufacturing establishments. General statistics to be published will include data on employment; man-hours; payrolls; value added by manufacture; value of products shipped; cost of materials, fuel, and electric energy; and new capital expenditures. Data will be provided by industry group and for each of 450 individual industries. Areas covered will include the United States, individual States, standard metropolitan areas, State economic areas, counties, and cities of 10,000 or more population. Special subjects covered will include industrial water use, indexes of physical volume of production, horsepower, inventories, and establishment size. Separate reports for Alaska and Hawaii will also be published.

The census of mineral industries, covering about 35,000 establishments engaged in mining, petroleum production, and quarrying, is the first complete canvass in these fields since 1939. The principal statistics to be presented for the mineral industries in the United States—by industry and industry group, and by geographic division and State—include number of operating companies, establishments, mines, quarries, wells, and preparation plants; value of products shipped; value added in mineral production; employment; man-hours of production workers; principal expenses and capital expenditures, by kind; horsepower rating of power equipment; and water intake.

The census of agriculture, preliminary reports of which began appearing in February 1955, provides an up-to-date inventory of farms and farming and a basis for planning by all those interested in the agricultural market. In addition to the data traditionally available from the agriculture census—on land in farms according to use, specified farm expenditures, livestock and livestock products, poultry and poultry products, specified crops harvested, and forest products—statistics will be available from the 1954 census on land use practices, including conservation activities, and on use of fertilizer and lime. The data on facilities and equipment on farms have also been expanded to include additional important items. Data from the agriculture census will be published for States, State economic areas, and counties.

The Current Program

The current program of the Bureau was carried out with improvements in timeliness and in techniques, and at the same time was expanded to provide data in fields not previously covered except in periodic censuses. The current program consists of the compilation of data on the size and characteristics of the population; employment and unemployment; housing; industrial production; retail and wholesale trade; cotton ginning, production, and distribution; United States exports, imports, and shipping statistics; and State and local government finances and employment.

The employment and unemployment data and the data on retail trade were collected and compiled in accordance with the new and improved sample design of 230 areas throughout the country as compared with 68 in the former design. Reliability of the data has been substantially improved under the new system, and it has been possible to tabulate the results in more detail. The data on total employment and unemployment, through a new joint release program, have been coordinated with Labor Department data including employment statistics from establishment reports and unemployment compensation figures. Studies were being made of plans for additional expansion of the current population survey, to produce further gains in reliability and comprehensiveness of the population, employment, and unemployment statistics.

BUSINESS STATISTICS.—Monthly reports were issued on retail and wholesale trade and on inventories of and storage capacity for petroleum products; quarterly reports on the reconditioning of steel barrels and drums; and seasonal reports on canned food stocks. The Bureau continued to release 10 days after the month covered an advance monthly report showing estimates of retail dollar sales volume for major kind-of-business groups and for all kinds of business combined.

COTTON STATISTICS.—Current data on cotton ginned continued to be released at dates specified by law. In cooperation with the Agricultural Marketing Service, the Bureau issued the consolidated cotton report pro-

viding data on ginnings, indicated yield per acre, and indicated total production. The two annual bulletins on cotton production and distribution were also issued.

FOREIGN TRADE STATISTICS.—The rising level of foreign trade was reflected in the Bureau's official foreign trade statistics, including reports on total trade; trade by commodity, by country, and by customs district; trade in gold and silver; bunker coal and oil loadings; vessel entrances and clearances; and water-borne foreign commerce. Over 150 additional special reports on foreign trade were prepared at the request and expense of interested persons or organizations.

GOVERNMENTS STATISTICS.—In addition to the regular summaries of State and city government finances, the results of eight special studies on activities of governments were made available. These included a study of historical statistics on State and local government finances, State and local government revenue in 1953, local government finances in city areas in 1953, and a textual study of school districts in the United States in 1954. Annual reports on State distribution of public employment and on city employment in 1954 were also issued.

INDUSTRY STATISTICS.—Reports of the 1953 annual survey of manufactures made available valuable data on the Nation's industrial resources, including for the first time statistics on water use in manufacturing. Information as to the country's industrial structure provided by the survey was helpful also in conducting the 1954 census of manufactures.

The *Facts for Industry* series was expanded to a total of 74 monthly, quarterly, or annual reports on the production and shipments of important commodities. Further gains in timeliness for release of these series increased their value as a current measure of the industrial activity of the country.

POPULATION AND HOUSING STATISTICS.—Data on population characteristics published included school enrollment, household and family characteristics, mobility of the population, and civilian population by age and sex, urban and rural. In addition to the monthly report on employment and unemployment, reports on labor force characteristics included work experience of the population, part-time workers, employment of students, and the detailed annual report on the labor force. Data on individual income were issued. The Bureau prepared and published monthly estimates of the total population, as well as up-to-date estimates by age, color, and sex; estimates by regions, divisions, and States, and of the Territories and possessions; estimates of the farm population; and projections to 1965 of the population by States. New information on housing and construction was made available with the publication of a report on expenditures for alterations and repairs on residential owner-occupied properties.

Defense and Other Special Work

In addition to the performance of its regular programs and operations, the Bureau of the Census continued to serve as the principal collecting and compiling agency for the Business and Defense Services Administration. Other special projects were performed for the Office of Defense Mobilization, the Federal Civil Defense Administration, the Industry Evaluation Board, the Operations Research Office, the Department of Defense, and other agencies. These services included nine repetitive or single-time special surveys and modifications of existing surveys, and numerous special tabulations of data already on hand.

A large number of special tabulations of data from census records were prepared at cost for other Government agencies, business organizations, trade associations, and individuals.

Special censuses were conducted for 143 cities and towns at the request and expense of the local communities concerned. The demand for work of this type can be expected to rise in view of the need to measure the great changes since 1950.

International Statistics Program

The Bureau of the Census continued its technical assistance to foreign governments in the improvement of their census and statistical services under the program of the Foreign Operations Administration (now the International Cooperation Administration). Included in these activities was the training of 29 foreign technicians, representing 14 countries, who spent 3 or more months receiving instruction in United States census methods. A total of 143 foreign visitors and guests, representing 42 countries, spent shorter periods studying and observing Bureau operations.

Under the technical assistance program of the Foreign Operations Administration, 13 Census Bureau experts were assigned to foreign posts during the year. They supplied census and statistical guidance to the Governments of Pakistan, Iran, Iraq, Jordan, Saudi Arabia, Cuba, Honduras, Paraguay, Peru, and Uruguay. The Bureau continued the exchange of census and statistical publications and technical materials with statistical offices in 65 countries.

Six members of the Bureau staff participated in the various sessions of the International Statistical Institute Conferences in Rio de Janeiro.

Other Activities

SPECIAL PUBLICATIONS.—The first volume in the 1950 Census Monograph Series was published. This series of detailed analytical studies was developed jointly by the Social Science Research Council and the Bureau of the Census, in cooperation with other Government agencies and private groups. Several other monographs were in press at the close of the year, and the remainder were scheduled for completion in the coming fiscal year.

MECHANICAL AND TECHNICAL OPERATION.—A second Univac tabulating system was installed and placed in active service in January 1955 to provide additional capacity and to speed up tabulation of the results of the 1954 censuses of business and manufactures.

PERSONAL CENSUS RECORDS.—Applications for personal information from census records to establish proof of age and citizenship totaled 139,514, an increase of about 20 percent over the level for the previous year. The number of cases processed amounted to 136,448.

Office of the Assistant Secretary for International Affairs

The Assistant Secretary of Commerce for International Affairs acts as principal adviser to the Secretary for the development and implementation of international trade policies and in this connection participates in inter-agency committees either as the Secretary's alternate or as the Department of Commerce representative. He also provides policy direction and guidance to the Bureau of Foreign Commerce and the Office of International Trade Fairs.

This Office supported the enactment of the Trade Agreements Extension Act and the International Finance Corporation Act; led Commerce participation in Japanese and Philippine trade and tariff negotiations; guided and supported the dollar liberalization programs of the Organization for European Cooperation; tightened export control regulations, although a somewhat smaller number of strategic items were controlled as a result of the revisions to the list announced in August 1954; applied export controls to items determined to be in short supply; organized and developed the international trade fair program, including exhibits and the trade missions; actively and directly supported the foreign technical assistance programs of the Foreign Operations Administration (now International Cooperation Administration); took positive actions to assist private foreign investors; improved the administration of foreign trade zones and encouraged the expanding use of zones to facilitate international trade; and inaugurated improved operating procedures for the Foreign Service.

This Office also reached an agreement with the Department of State for a joint approach to the Bureau of the Budget and to Congress for appropriations for the expansion of foreign economic and commercial reporting services and for the assignment to important diplomatic and consular posts of specialized officers to perform trade promotion and investment promotion functions for the American business community; took steps to assure more active participation on the part of the Department of Commerce in the appointment and assignment of Foreign Service officers per-

forming economic and commercial functions; and developed and conducted a training course in conjunction with the Foreign Service Institute to assure more adequate preparation of Foreign Service officers for the performance of work on behalf of the Department of Commerce.

BUREAU OF FOREIGN COMMERCE

Expanding its efforts to further the interests of American business in the field of international trade, the Bureau of Foreign Commerce in fiscal 1955 made important concrete advances in a number of special projects while intensifying its efforts on continuing programs.

The Bureau followed developments in trade liberalization throughout the world and participated with the U. S. Foreign Service and international organizations in efforts to encourage and accelerate the liberalization process. As normal commercial competition increased, the Bureau met a correspondingly greater demand for services from American businessmen.

BFC participated widely in the extensive preparations for the renegotiation of the General Agreement on Tariffs and Trade and for the undertaking of a general round of tariff negotiations, primarily with Japan, looking to its admission to the General Agreement. Bureau personnel also participated in the work of the United States delegations at the scene of these negotiations.

Staff support was furnished by the Bureau to the Office of the Assistant Secretary for International Affairs on a wide variety of policy questions of immediate concern to businessmen and to the United States Government, notably United States mineral policy, disposal of agricultural surpluses, petroleum imports, and international agreements and other arrangements affecting trade in commodities. Assistance was provided also on special international, economic, and trade matters arising during the year, including the participation of the Assistant Secretary in the Council for Foreign Economic Policy, the National Advisory Council on International Monetary and Financial Problems, and in various other formal and informal interdepartmental committees at the sub-Cabinet level.

The Bureau continued to administer the British Token Import Plan and the China Trade Act.

International Activities

Major contributions were made by the Bureau in the planning and conducting of the international trade fair program. Eleven trade missions sent by the Bureau to fairs in Europe, the Far East, and Canada staffed trade information centers, answering more than 17,000 general inquiries and conducting some 4,000 business consultations. Nine of the missions made country tours, visiting more than 50 cities and speaking with nearly 4,000 businessmen. Similar activity is planned for Latin America and Africa, and a total of 18 missions is expected to be sent abroad in 1956.

During the year the Foreign Operations Administration (now the International Cooperation Administration) assumed certain of the functions in technical assistance overseas previously performed for it by the Bureau of Foreign Commerce. At the close of the year 12 employees working in 3 countries on FOA projects in the field of industry and transportation development continued on the Bureau's rolls. More than 50 individuals from these countries were chosen for training in the United States in general economic and industrial development fields. In addition, 16 special groups of nationals undertook study programs in the fields of marketing and distribution in this country. Arrangements for these study programs were made by BFC in cooperation with public and private organizations, universities, and United States business firms.

Bureau personnel participated actively in the preparations for, and were representatives at, important international conferences. Of particular note were their contributions to the United Nations Economic and Social Council, the Organization of American States, the Economic Commission for Latin America, and the Economic Commission for Asia and the Far East.

Other international conferences in which valuable staff assistance was provided included the Sixth Pan-American Highway Congress; the Assembly of the International Civil Aviation Organization; meetings of the Executive Committee and General Assembly of International Union of Official Travel Organizations and the Permanent Executive Committee of the Inter-American Travel Conferences; and various conferences in connection with problems of foreign restrictive insurance legislation.

Business Inquiry Services

Businessmen continued to place heavy demands on the Bureau for information about foreign dealers and representatives, sources of supply, and other types of commercial connections. Some 34,000 trade lists of foreign firms, classified by commodity or industry, were supplied to business. The Bureau prepared 583 new trade lists based on new material from the Foreign Service, and more than 1,500 from material on hand, including foreign directories. About 17,000 detailed descriptions of individual firms—World Trade Directory Reports—were supplied. In providing assistance to American exporters and importers in the adjustment of trade difficulties with firms abroad, approximately 2,400 trade complaints were handled, including 900 new cases.

Export Control Program

The export control program was concerned mainly with carrying out the revised security export control policy announced in August 1954 which permitted: (1) the removal of less strategic items from the lists of commodities controlled for security reasons to the Soviet bloc by the United

States and other cooperating countries; and (2) the relaxation of certain United States export licensing requirements to friendly countries.

Actual United States exports to the bloc rose from approximately \$1,360,000 in fiscal 1954 to \$5,630,000 in 1955—exclusive of shipments made under the President's flood relief program for the Danube Basin. However, such exports remained far below pre-Korean levels and toward the end of the year began to level off, chiefly because the bloc had purchased United States nonstrategic goods in only token amounts.

Other important changes were made in the export control program in 1955:

1. "Short supply" controls were reimposed on refined copper, copper scrap, aluminum scrap, and certain other commodities essential to the national economy.

2. More effective enforcement measures were inaugurated by the United States and cooperating countries, including an agreement whereby embargoed goods originating in a cooperating country will not be permitted to traverse another in transit to the Soviet bloc, Communist China, Tibet, or North Korea unless such shipments are covered by a special "transit authorization certification" issued by the exporting country.

3. The Bureau developed and published a "Commodity Identification Manual" designed to assist United States and foreign customs officials in identifying strategic commodities.

Publications Services

In a vigorous effort to expand its services to business, the Bureau initiated some new publications and made substantial improvements in the existing ones with emphasis on providing maximum utility to businessmen. More publication services were offered—and utilized—in fiscal 1955 than in any other recent year.

Outstanding among the new publications is the *World Trade Information Service*—a broader, more efficient reporting service than the Business Information Service which it supersedes. WTIS reports are grouped, according to field of interest, in five parts. Since the inauguration of this service in November 1954, 213 reports had been issued as of the close of the fiscal year and many more were in press.

How the Bureau of Foreign Commerce Works for You, a booklet describing services for businessmen, was in preparation.

Business Views on the U. S. Government's Role, Part 2 of the study *Factors Limiting U. S. Private Investment Abroad*, was issued.

Investment Opportunities Abroad, a new bimonthly bulletin, was initiated to provide a special channel for disseminating the hundreds of opportunities for investment which the Bureau obtains through the International Cooperation Administration and the United States Foreign Service.

Two new investment handbooks, covering Pakistan and the Union of South Africa, were released. Two additional ones, covering the Philippines and Mexico, were in process.

Publications long out of date were revised and issued in entirely new formats, including *Electric Current Abroad* and *Channels for Trading Abroad*. The completely revised, redesigned *Guide to Foreign Business Directories* was in press at the year's end.

Important improvements were made in continuing publications. News coverage of the *Foreign Commerce Weekly* was expanded, and departments were given more descriptive titles and a regular order of appearance.

OFFICE OF INTERNATIONAL TRADE FAIRS

The Office of International Trade Fairs was established as a separate operational organization under the direction of the Assistant Secretary for International Affairs in January 1955. A small headquarters with administrative and planning units was set up in Washington, with a branch procurement and shipping office in New York City and a Paris staff responsible for design and construction operations relating to the European trade fairs.

Carrying out the program inaugurated by the President in September 1954, the Office, in close cooperation with American industry, brought about the first large-scale United States participation in international trade fairs. This participation was in three effective ways: Government-industry central exhibits, goods displayed by private companies, and trade development teams.

Between 12 and 15 million people visited our central exhibits at 15 fairs in Europe and the Far East and gained a new conception of how Americans live, work, and play and of the private enterprise system's tremendous output of goods and services for peace and human well-being. Among these exhibits were "Main Street U. S. A." with stores, a church, and a school, including a kindergarten with children and teacher; and "America at Home," a modern house in which a live American family went about their daily activities of work and recreation. Other exhibits have been "Farming Aids and Methods," "Partners in Progress," and "Peaceful Uses of Atomic Energy." Nearly 900 American firms contributed products shown at the central exhibits.

Foreign businessmen and visitors have been enthusiastic and interested in the participation of the United States in these trade fairs. Particular appreciation is expressed by businessmen interested in two-way trade and various trade problems who have had the opportunity to discuss these subjects with the members of trade missions at the fairs and in their tours in the countries where the fairs were held. Visitors have been greatly impressed by the United States exhibits at the fairs and have crowded

to them in steady streams. At times the doors to the United States pavilions have been closed to insure that all visitors would have equal chance to see the exhibits. Editorial and newspaper comment in the foreign press of the countries where fairs are held has been enthusiastic and detailed. This first year of participation by the United States has revealed the great interest of all peoples in the American way of life and the products of American industry and has increased the attention of foreign businessmen to the vast possibilities of two-way trade between their countries and the United States.

The trade missions which have been sent to each country in which a trade fair is held have been an outstanding success. These missions, organized and staffed by the Bureau of Foreign Commerce with the help of private businessmen, serving without compensation, emphasize and implement the United States policy of promoting two-way trade.

Inland Waterways Corporation

As a result of the sale of the Inland Waterways Corporation's operating rights and facilities to the Federal Barge Lines on July 1, 1953, the Corporation's activities during fiscal 1955 consisted primarily of settling suits and claims for damages and of maintaining the required surveillance of the purchaser's operations in order to determine compliance with the contract of sale.

As of June 30, 1955, the balance sheet of the Corporation reflected assets of approximately \$12 million and total liabilities of approximately \$737,000. The Government's net investment in the Corporation amounted to \$11.5 million, representing a gross investment of \$27.3 million, less an accumulated deficit of \$15.8 million which has been reduced by approximately \$9 million since the sale was consummated. Corporation income for fiscal 1955 amounted to \$349,000, of which \$321,000 represented interest accrued on the mortgage held by the Corporation. Of total expenses amounting to only \$20,000, \$12,000 represented administrative expenses over which the Appropriation Committee of Congress exercised budgetary control.