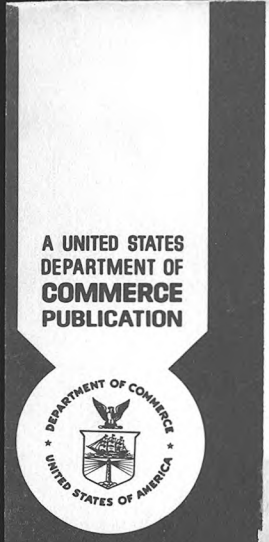
A UNITED STATES
DEPARTMENT OF
COMMERCE
PUBLICATION

ANNUAL REPORT of the SECRETARY OF COMMERCE



Fiscal Year Ended June 30, 1969

Letter of Transmittal

January 26, 1970

Dear Sirs:

I have the honor to transmit to you the annual report of the activities of the Department of Commerce for the fiscal year ended June 30, 1969. In the interest of economy, we have eliminated the printing of the usual number of copies necessary for distribution as authorized by 44 U.S.C. 1117. Arrangements have been made with the Superintendent of Documents to place a limited supply on sale and to provide the number needed for depository libraries.

Copies have been made available to the Committees of Congress which are regularly concerned with the work of the Department of Commerce. A limited number of additional copies will be furnished to other Committees or individual Congressmen upon request, and, of course, a copy will be maintained on file in the Department for public inspection as required by law.

Sincerely yours,

Maurice H. Stans
Secretary of Commerce

The President of the Senate
The Speaker of the House of Representatives

For sale by the Superintendent of Documents, U.S. Government Printing Office,
Washington, D.C. 20402. Price $1.00.

Foreword

This is the 57th Annual Report of the Secretary of Commerce. It is prepared under Title 15, United States Code, Section 1519. which provides that the Secretary of Commerce shall make an annual report to the Congress on the finances and activities of the Department of Commerce. Separate annual reports are made to the Congress by the Economic Development Administration, the Environmental Science Services Administration, the Patent Office, the Maritime Administration, the United States Travel Service, and the Office of State Technical Services, as required by the statutes authorizing these activities.

The annual reports, in addition to meeting the administrative requirements of the law, serve valuable research and reference purposes, and provide a permanent historical record of the Department and its major activities. In order that this Annual Report may better serve those purposes, the constructive comments and suggestions of its readers will be appreciated.

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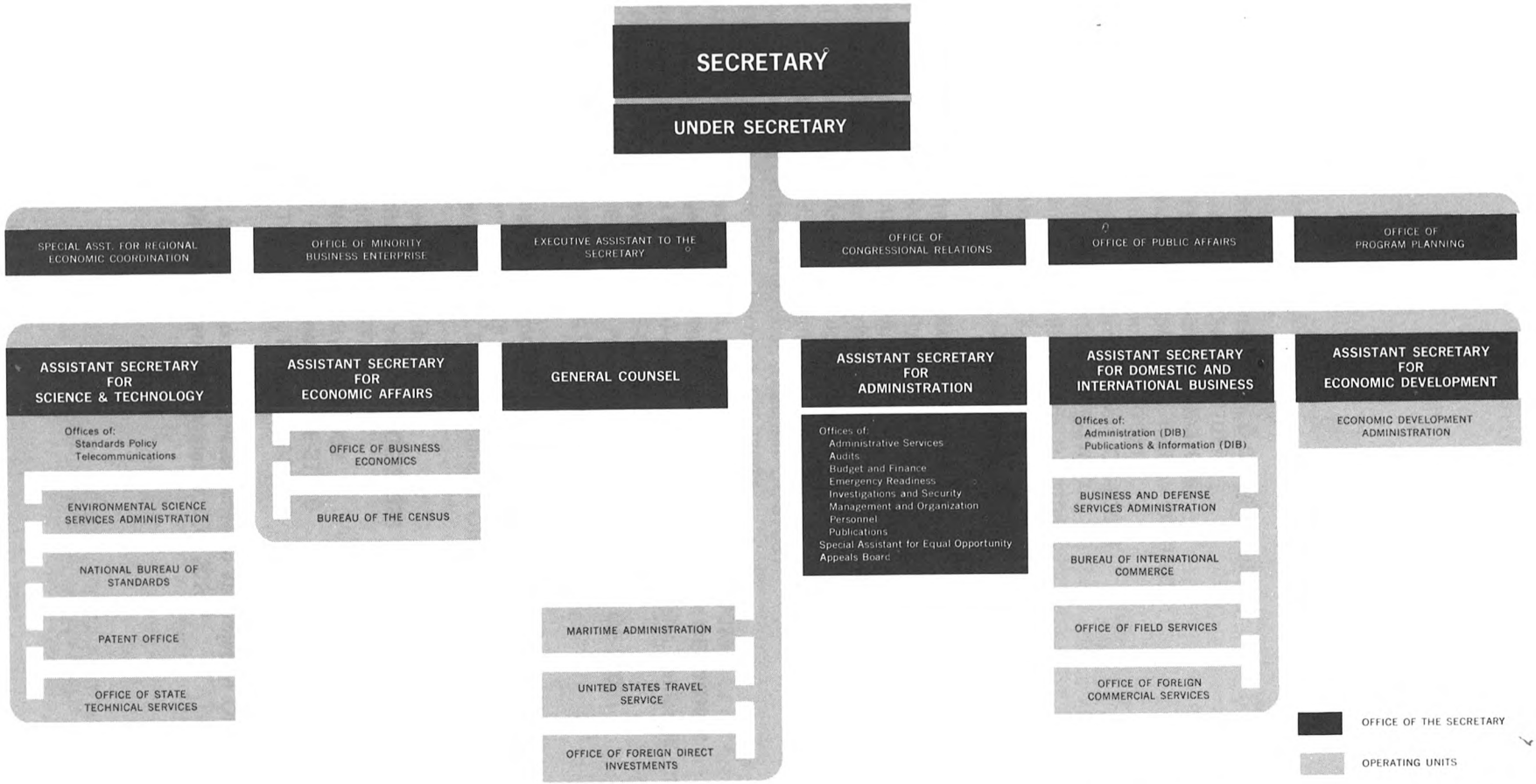

ORGANIZATION

THE UNITED STATES DEPARTMENT OF COMMERCE

JUNE 30, 1969

LIST OF KEY OFFICIALS
DEPARTMENT OF COMMERCE
June 30, 1969

Secretary of Commerce	Maurice H. Stans
Executive Assistant to the Secretary	Paul T. O'Day, Acting
Special Assistant to the Secretary for Congressional Relations	Sol Mosher
Special Assistant to the Secretary for Public Affairs	Robert M. Smalley
Special Assistant to the Secretary for Regional Economic Coordination	L. Ralph Mecham
Director, Office of Program Planning	Steven E. Schanes
Director, Executive Secretariat	Marion M. Meadows
Administrator, Maritime Administration	Andrew E. Gibson
Director, United States Travel Service	C. Langhorne Washburn
Director, Office of Foreign Direct Investments	Richard P. Urfer
Director, Office of Minority Business Enterprise	Thomas F. Roeser
Under Secretary of Commerce	Rocco C. Siciliano
Deputy Under Secretary	David W. K. Peacock
Assistant Secretary of Commerce for Economic Affairs	William H. Chartener
Deputy Assistant Secretary for Economic Affairs	John B. Henderson
Deputy Assistant Secretary for Economic Policy Review	Vacant
Director, Office of Business Economics	George Jaszi
Director, Bureau of the Census	A. Ross Eckler
Assistant Secretary of Commerce for Domestic and International Business	Kenneth N. Davis, Jr.
Deputy Assistant Secretary for Domestic Business Policy	Walter A. Hamilton
Deputy Assistant Secretary for International Trade Policy	Lawrence A. Fox
Deputy Assistant Secretary for Resources	Stanley Nehmer
Deputy Assistant Secretary for Business Development	Robert McLellan
Director, Office of Administration (DIB)	Richard M. Gottfried
Director, Office of Publications and Information (DIB)	Dean Smith
Administrator, Business and Defense Services Administration	Forrest D. Hockersmith, Acting
Director, Office of Field Services	Jack O. Padrick
Director, Office of Foreign Commercial Services	Donald S. Gilpatric
Director, Bureau of International Commerce	Harold B. Scott
Assistant Secretary of Commerce for Science and Technology	Myron Tribus
Deputy Assistant Secretary for Science and Technology	Vacant
Special Assistant to the Assistant Secretary	David J. Eden, Acting
Director, Office of Telecommunications	Richard C. Kirby, Acting
Director, Office of Standards Policy	A. Allan Bates, Acting
Administrator, Environmental Science Services Administration	Robert M. White
Commissioner of Patents	William E. Schuyler, Jr.
Director, National Bureau of Standards	Allen V. Astin
Director, Office of State Technical Services	Phillip K. Reily
Assistant Secretary of Commerce for Economic Development (Head of Economic Development Administration)	Robert A. Podesta
Deputy Assistant Secretary for Economic Development	Charles A. Fagan, III
Deputy Assistant Secretary for Policy Coordination	Jonathan Lindley
Deputy Assistant Secretary for Economic Development Planning	Vacant
Deputy Assistant Secretary for Economic Development Operations	James E. Hawkins
Special Assistant to the Assistant Secretary	Richard L. Sinnott
Assistant Secretary of Commerce for Administration	Larry A. Jobe
Deputy Assistant Secretary for Administration	Lawrence E. Imhoff
Special Assistant for Equal Opportunity	Luther C. Steward, Jr.
Director, Office of Administrative Services	Donald B. Moore
Director, Office of Audits	John R. Delmore
Director, Office of Budget and Finance	Charles H. Alexander
Director, Office of Emergency Readiness	John F. Lukens
Director, Office of Investigations and Security	John W. Phillips
Director, Office of Management and Organization	William F. Rapp
Director, Office of Personnel	John Will
Director, Office of Publications	Herbert L. Brown, Jr.
Chairman, Appeals Board	Nathan Ostroff
General Counsel	James T. Lynn
Deputy General Counsel	William E. Murane

DEPARTMENT OF COMMERCE

Summary of Employment and Financing--1965 to 1969

	End of year employment					Obligations (in thousands)				
	1965	1966	1967	1968	1969	1965	1966	1967	1968	1969
General Funds:										
GENERAL ADMINISTRATION:										
Office of the Secretary	282	281	271	290	312	$4,232	$4,322	$4,179	$4,528	$5,168
BUSINESS ECONOMICS AND STATISTICS:										
Office of Business Economics	216	235	236	232	233	2,348	2,512	2,778	2,919	3,075
Bureau of the Census	3,594	3,098	3,586	4,895	4,116	37,413	26,569	27,622	36,025	43,633
Total, Business Economics and Statistics	3,810	3,333	3,822	5,127	4,349	39,761	29,081	30,400	38,944	46,708
ECONOMIC DEVELOPMENT ASSISTANCE:										
Economic Development Administration[1]	2	877	1,038	1,082	1,032	1	319,763	402,313	274,203	273,703
Area Redevelopment Administration	372					70,937				
Total, Economic Development Assistance	374	877	1,038	1,082	1,032	70,938	319,763	402,313	274,203	273,703
PROMOTION OF INDUSTRY AND COMMERCE:										
Business and Defense Services Administration	376	419	433	430	428	4,879	5,312	5,635	5,956	6,308
International Activities	862	918	942	961	1,005	14,436	15,432	17,073	17,517	21,551
Office of Field Services	387	385	390	411	399	4,115	4,252	4,429	4,703	5,059
Participation in U.S. Expositions	30	9	37	110	13	1,559	656	7,530	3,140	721
Foreign Direct Investment Control					196					4,441
United States Travel Service	77	83	82	86	85	2,991	2,975	2,936	2,910	3,285
Total, Promotion of Industry and Commerce	1,732	1,814	1,884	1,998	2,126	27,980	28,627	37,603	34,226	41,365
SCIENCE AND TECHNOLOGY:										
Environmental Science Services Administration			9,199	9,085	9,231			154,144	164,859	167,207
Coast and Geodetic Survey	2,375	2,323				43,019	40,852			
Weather Bureau	6,147	6,231				115,354	110,518			
Patent Office	2,603	2,584	2,732	2,794	2,698	31,433	34,392	36,989	38,713	42,500
National Bureau of Standards	2,224	2,033	2,070	2,004	2,326	36,130	43,226	36,792	36,756	38,118
Office of State Technical Services		14	27	24	14		3,449	5,485	6,407	5,298
Total, Science and Technology	13,349	13,185	14,028	13,907	14,269	225,936	232,437	233,410	246,735	253,123
OCEAN SHIPPING:										
Maritime Administration	1,875	1,854	1,820	1,784	1,957	340,666	346,965	247,121	387,506	401,814
Total, General funds	21,422	21,344	22,863	24,188	24,045	709,513	961,195	955,026	986,142	1,021,881
Total, Other funds[2]	6,819	12,897	15,346	14,270	12,450	77,132	185,694	336,234	292,728	271,194
Grand Total, All funds	28,241	28,241	38,209	38,458	36,495	786,645	1,146,889	1,291,260	1,278,870	1,293,075

[1] Includes Regional Economic Planning in 1966 and 1967.

[2] Other funds include public enterprise funds, intra-governmental funds and trust funds. Included is employment, but not funds, for allocation accounts carried in the budget schedules of other agencies. Amounts for advances and reimbursements have been adjusted to exclude reimbursements between Commerce appropriation accounts as follows: 1965–$11,553,000; 1966–$11,422,000; 1967–$16,315,000; 1968–$11,343,000; 1969–$11,237,000.

GENERAL ADMINISTRATION

INTRODUCTION

Creation and Authority.—The Department of Commerce was designated as such by the Act of March 4, 1913 (37 Stat. 736; 15 U.S.C. 1501) which reorganized the Department of Commerce and Labor created by the Act of February 14, 1903 (32 Stat. 825; 15 U.S.C. 1501), by transferring all labor activities into a new, separate Department of Labor.

Purpose and Objectives.—The historic mission of the Department is to "foster, promote, and develop the foreign and domestic commerce" of the United States. This has evolved, as a result of legislative and administrative additions, to encompass broadly the responsibility to foster, serve and promote the nation's economic development and technological advancement.

Organization and Programs.—The general administration of the functions and authorities of the Department is vested in the Secretary of Commerce, who is also responsible for advising the President on policy and programs affecting the industrial and commercial segments of the national economy. The Under Secretary serves as the principal deputy to the Secretary in all matters affecting the Department. The Assistant Secretaries and the General Counsel are the Secretary's key line and staff officials for overall management of the Department. Staff Officers reporting directly to the Secretary include the Executive Assistant to the Secretary, the Special Assistants for Congressional Relations, Public Affairs, and Regional Economic Coordination, and the Director of the Office of Program Planning.

The operating units of the Department, which carry out the bulk of Commerce's substantive functions, report, with a few exceptions, to Assistant Secretaries, each operating unit being associated with the Assistant Secretary within whose broad program area its operations logically fit. The operating units that report directly to the Secretary are the Maritime Administration, United States Travel Service, Office of Foreign Direct Investments, and Office of Minority Business Enterprise.

The Assistant Secretary of Commerce for Economic Affairs serves as principal adviser to the Secretary and other Departmental officals with respect to matters of economic policy and programs. He also coordinates economic research and statistical programs in the Department and serves as liaison with the Council of Economic Advisors.

The Assistant Secretary for Science and Technology serves as adviser to the Secretary and to all Departmental officials with respect to matters of science and technology and in this capacity coordinates and evaluates the research and development activities carried out in the physical and natural sciences by all organization units of the Department.

The Assistant Secretary for Domestic and International Business serves as the principal adviser to the Secretary on domestic and international aspects of the Department's responsibilities concerning industry, trade, and related economic activities.

The Assistant Secretary for Economic Development serves as principal adviser to the Secretary on matters concerning the economic advancement of undeveloped or lagging sub-regions of the Nation. He carries out most of the responsibilities assigned to the Department by the Public Works and Economic Development Act of 1965, and is the designated head of the Economic Development Administration.

Administrative management matters are the responsibility of the Assistant Secretary for Administration. These include: budget planning and administration; financial accounting and administration; management and organization planning; personnel admin' ration; audits; administrative operations and services; publications; security and investigations; and emergency preparedness planning. The Assistant Secretary for Administration is also designated the Director of Equal Employment Opportunity and the Contracts Compliance Officer for the Department and is authorized to carry out the Secretary's responsibilities under Title VI of the Civil Rights Act of 1964 and Executive Orders 11246 and 11478.

The General Counsel is the chief law officer of the Department and serves as legal adviser to the Secretarial officers and other officers of the Department. The Office of the General Counsel supervises all legal activities of the Department and supervises and coordinates the development of the Department's legislative program.

HIGHLIGHTS OF 1969

- President Nixon visited the Department on February 7, 1969, to meet and address a representative number of employees. In his remarks the President indicated that, in addition to the traditional responsibilities of the Department, he would look to Commerce for major leadership in assuring that all people have an equal chance to become owners and managers in our private enterprise system.

- As foretold by the President in his visit to the Department in February, the Secretary was assigned responsibility by Executive Order 11458 of March 5, 1969, for developing and coordinating a National Program for Minority Business Enterprise. Subsequently, the Secretary established the Office of Minority Business Enterprise on March 20, 1969.

- A long-term project to renovate and modernize the Commerce building and provide central air conditioning got underway. Incident to this, the Patent Office moved to a modern office facility in nearby Virginia.

ADMINISTRATIVE MANAGEMENT

Auditing

During fiscal year 1969, the Office of Audits issued 37 audit reports on audits conducted by its staff members. Of these, 23 reports pertained to various activities within the Department of Commerce and 14 related to audits of contractor and grantee costs. In addition, the Office made arrangements for and reviewed and approved audit reports on 63 contract audits made primarily by the Defense Contract Audit Agency and 191 public works project audits made primarily by independent public accountants.

Audit recommendations made during FY 69 have resulted in improved management procedures and controls, sometimes pointing to potential dollar savings. For example, it was recommended that consideration be given as to whether the cost of the 42.5 million-address mailing list for the 1970 Decennial Census could be properly allocated and billed to non-Commerce users when the mailing list or parts of it are used for other censuses. As an illustration, it was pointed out that the Bureau of the Census would have been reimbursed $350,000 if non-Commerce users had been charged for the 7 million addresses used for recent censuses. It was also recommended to one Bureau that advances to grantees be reduced since the cost to the Government of financing such excess advances may have approximated $50,000. Another recommendation was that one Bureau's employees make greater use of General Services Administration (GSA) vehicles rather than privately-owned or commercial vehicles since this could result in savings of more than $100,000 annually.

In addition, audits of costs claimed by contractors and grantees resulted in reporting of recommendations for cost disallowances to contract and grant administration officers in fiscal year 1969 with a savings to the Department of approximately $595,000.

Revisions of the Federal Procurement Regulations during the past fiscal year have expanded the role of the auditor in assisting contracting officers in financial matters. For example, an audit is now required prior to the negotiation of any non-competitive contract or modification resulting from a proposal in excess of $100,000. Further, an audit of certain negotiated contracts is required when defective pricing is suspected.

As part of the continuing effort to improve auditing services, the Office of Audits has utilized the Interagency Auditor Training Center, organizationally located in the Office of the Assistant Secretary for Administration, in the development of professional staff auditors. These training benefits, coupled with an intensive recruitment effort at colleges and universities, have minimized costs to fill vacancies with qualified personnel to meet Department audit requirements.

Budget and Finance

Appropriations for fiscal year 1969 totaled $975.0 million, of which $966.0 million was appropriated in the Regular Appropriation Act (P.L. 90-470), $.5 million in the Supplemental Appropriation Act (P.L. 90-608) for the Office of Foreign Direct Investments, and $8.5 million in the Second Supplemental Appropriation Act (P.L. 91-47) for increased pay costs.

Obligations totaled $1,293 million including $1,022 million from direct appropriations and $271 million from other funds.

The Department has embarked on a concerted program to accelerate the development and implementation of modern financial management systems. Departmental

level financial management functions have been realigned, the financial systems staff expanded, and firm target dates established for the submission of accounting systems to the Comptroller General for approval. Department-wide accounting principles and standards were approved by the Comptroller General on June 27, 1969. The principles and standards are prescribed to facilitate the role of accounting in the overall financial management system of the Department and to provide a background against which accounting systems can be formulated and evaluated within the Department. The accounting principles and standards include a section on the administrative control of funds which was approved by the Bureau of the Budget on July 7, 1969. These principles and standards prescribe as Departmental policy the mandatory use of cost-based budgeting.

On June 6, in the interest of improving the budget and financial management services provided by the Office of the Assistant Secretary for Administration, the following realignments of functions were announced:

The Office of Budget and Finance was reconstituted as the Office of Budget.

Under the new arrangement greater emphasis is to be placed on budget review and analysis and upon Department-wide financial and program reporting.

A new Office of Financial Management Services was established. It includes the Central Accounting Division, which was located in the Office of Budget and Finance, and the Data Processing Division, transferred from the Office of Administrative Services. The new office will also be responsible for financial management of the Working Capital Fund and for budget functions related to the Office of the Secretary.

The Financial Systems Policy Division, formerly part of the Office of Budget and Finance, was reconstituted as a separate entity called the Financial Systems Staff reporting directly to the Assistant Secretary for Administration. This staff will provide leadership in the development and implementation of modern accounting systems throughout the Department and will work in close liaison with the Bureau of the Budget and the General Accounting Office in accomplishing this objective.

Management and Organization

The Department's management improvement and cost reduction program resulted in changes by organizations of the Department having a monetary value of $17.8 million, calculated on a one year basis. These "savings" include actions that increased productivity, avoided costs, streamlined organizations and operations, and produced other dollar-measurable benefits in carrying out programs.

Significant changes were approved by the Office of the Secretary in the basic organizational structures of the Environmental Science Services Administration, National Bureau of Standards, Business and Defense Services Administration, Economic Development Administration, and the Patent Office. The Office of Minority Business Enterprise was established to carry out newly assigned responsibilities of the Department.

Special Department-wide, management-oriented studies and efforts carried out during the year included a thorough Secretarial-level review of all major committees of the Department; a study of the Department's field structure; the development of plans for responding to the President's program, being carried out under the leadership of the Bureau of the Budget, for decentralizing and streamlining Federal assistance to States and communities; and the introduction of policies and management arrangements for controlling the acquisition and use of fast copy equipment throughout the Department.

At the end of the fiscal year, the Department had a total of 59 digital computers in operation, an increase of 6 computers over the previous year. Of the total, 39 were Government-owned and 20 were leased. Net costs (including costs for purchase and lease of hardware, salaries, and contract services) of data processing operations were $31.5 million. This was an increase of $6.3 million, about half of which was for purchase of two large scale computers previously leased. The purchase of these computers will result in a saving of $2.5 million over the expected useful lives of the systems.

Personnel Management

Total paid employment in the Department on June 30, 1969, was 36,470, a decrease of 2,149 from June 30, 1968. This decrease in total paid employment was attributable principally to a loss during the fiscal year of 801 full-time permanent positions as a result of the application of the provisions of Public Law 90-364, a decrease of 650 seamen employed by the Maritime Administration under General Agency Agreements, and a general decrease in total employment in the Bureau of the Census.

During the year, emphasis was continued on selective placement programs to provide employment opportunities for members of minority groups, the disadvantaged, the handicapped, and women. There has been a steady increase in the employment of women and members of minority groups, particularly at grades GS-12 and above.

The Department has continued to pioneer in developing and carrying out new programs designed to afford members of minority groups and disadvantaged individuals greater opportunities for employment and advancement. A typical program initiated during the year is the

Junior Technician Program. This program encourages the employment of outstanding high school juniors from public high schools on a part-time basis in a variety of occupations. Upon graduation from high school, successful candidates are eligible for continued specialized training and permanent employment in the Department.

In addition, effective lines of communication were established between younger employees and management officials of the Department to obtain the views of younger employees on operational and administrative policies and practices.

The Department initiated a review of manpower requirements and the utilization of manpower resources in the field facilities of the Weather Bureau of the Environmental Science Services Administration. The review is being carried out by a team of experts headed by an executive of the Civil Service Commission. As a result of the review, it is expected that a clearer and more precise understanding will be gained of both minimum and optimum manpower requirements for the workload in field facilities of the Weather Bureau, and of steps which can be taken to improve manpower utilization and motivation in the field staff of the Weather Bureau.

The Department's Employment Information Center, located near the lobby of the main Commerce Building, continued to provide service to the public by handling more than 12,700 inquiries during the year. Of these 12,700 inquiries, 8,854 were concerned with employment, and the remainder were general questions of visitors. In addition, 751 persons were referred to the personnel offices of the various Department activities, and job offers were accepted by 72.

The Department continued to place high priority on the training and development of its employees. Some 340 middle managers (grades GS-11 through GS-15) have received a week's training in the behavioral sciences and managerial theory. Some 50 executives (grades GS-16 and above) of the Department have attended seminars featuring distinguished guest speakers from private life and from Government. The Department also initiated a supervisory training course. Eventually, all the supervisors in the Department will attend the course so that they may become more effective in the performance of their supervisory duties. All in all, some 15,000 men and women have received Department-sponsored training of various kinds during the year.

The computerization of the Department's personnel records materially progressed during the fiscal year. Approximately one-half of the employees of the Department are now included in the Department's automatic data processing system for personnel management. As a result of the Department's automatic recordkeeping processes, a great variety of reports, hitherto unavailable except at prohibitive cost, are now obtainable.

The evaluation of personnel management activities in various bureaus and offices was actively continued during the year. Personnel management programs and practices were examined in the Office of the Secretary, the Office of Business Economics, the Office of State Technical Services, the Office of Foreign Direct Investments, the U.S. Travel Service, and the National Bureau of Standards. As a result of on-site surveys conducted at the above-mentioned organizations, top management officials of each organization were offered recommendations on how to improve personnel management programs and practices in the course of their carrying out their respective operating programs.

Publications and Printing

Receipts of the Superintendent of Documents from sales of Commerce publications rose in fiscal 1969 to $4,492,000. This figure, 10 percent higher than in the previous year, again exceeded the sales of any other department's publications and accounted for nearly one-fourth of his receipts.

Substantial increases were reported in the sales of charts and maps and of technical reports by agencies of the Department, while receipts for patents and trademarks declined. Sales in these categories, together with those for publications sold by the Superintendent of Documents, accounted for a total of $10,832,000 in sales of Commerce printed materials, up 15 percent to a record high.

Automation of typographic composition by computers and photoelectric processes increased steadily through the past year, with savings of from $10 to $70 a page and marked improvement in typography and format. Three major periodicals were converted to composition on the Government Printing Office's 1,000-character-per-second Linotron: the Census Bureau's principal monthly reports on exports and on imports and the semi-monthly catalog of the Clearinghouse for Federal Scientific and Technical Reports, with combined savings estimated at $85,000. In all, 18,956 pages were composed for Commerce on the Linotron with estimated savings of more than $250,000 in fiscal 1969, and that figure is expected to increase by more than 50 percent in 1970. On the initiative of the Office of Publications and with the cooperation of the Government Printing Office, the Department of Agriculture's Graduate School conducted the first course for Commerce and other Government printing technicians in computer programming for automated composition on the Linotron.

The Office reviewed 395 proposals for publications with estimated printing costs of $1,579,000, in fiscal 1969, compared to 293 requests with printing costs of $1,401,000 during the previous year.

Emphasis on sales promotion continued in support of the Department's policy of distributing publications

primarily by sale. More than 150 promotional pieces were printed and distributed, among them 90 fliers and 35 cross-ads for use on blank pages of other publications. At year's end, 64 such ads were in use. Non-Commerce agencies reciprocating in the cross-ad program increased from six to eight. Several of the fliers promoting major Commerce publications were printed and mailed by the Superintendent of Documents in quantities of up to 1 million at no cost to the Department. The Office also provided publications exhibits at a number of major conventions and seminars.

Facilities of the Office of Publications printed 191 million page units and provided related services for which billings totalled $3,080,000. In the previous fiscal year, 203 million page units were printed, and billings totalled $2,895,000.

Printing costs in the main plant rose form $4.90 per thousand pages in fiscal 1968 to $5.59 in the last fiscal year, reflecting higher costs for labor and materials. In the branch plant serving the Clearinghouse for Federal Scientific and Technical Information at Springfield, Virginia, costs increased as a result of unique customer requirements, labor costs, and prices paid for materials. The page-unit output at Springfield dropped from 53.6 million units in fiscal 1968 to 51.8 million in 1969. Billings per employee in the two facilities reached a new high of $15,602 last fiscal year, as compared with $14,774 for the previous year.

Office of Investigations and Security

The Office of Investigations and Security continued to discharge its responsibilities for the operation of the Personnel Security and Physical and Documentary Security Programs of the Department, and also conducted administrative investigations of a varied nature as requested by Secretarial Officers and heads of bureaus and offices.

In fiscal 1969 the Office processed 4,727 Commerce employees and prospective employees under Executive Order 10450, which prescribes security requirements for employment in the Executive Branch, and issued 2,780 security clearances authorizing access to classified data or restricted areas. The program of security checks of firms and individuals performing personal services for the Department was continued, and involved handling of approximately 945 matters in this category.

Security checks were also made of persons considered for service on the numerous committees and boards which assist and advise the Department in implementing programs. Approximately 680 cases of this nature were disposed of in fiscal 1969.

Administrative Services

The first class of the Office of Administrative Services (OAS) Management Training Program successfully completed the program on May 28, 1969, when seven of the ten OAS employees originally selected were given training certificates showing completion of the necessary work. The other three employees had transferred to other offices within the Office of the Secretary and were unable to complete the program. The program was initiated in January 1968 for the purpose of training and developing OAS employees so that they would be eligible to progress to middle and upper management positions in keeping with OAS needs. The second class will be selected in September 1969.

Application of the Productivity Accounting Program was intensified at the National Bureau of Standards and the Environmental Science Services Administration (ESSA). As a result, four additional positions were eliminated in ESSA's Administrative Operations Division bringing their total to ten. In addition to the administrative services area, ESSA plans to extend the program to such areas as finance and personnel. Nine lectures on the program were given at the Civil Service Commission and additional Bureau of the Budget officials were briefed on the program's application to PPB. Productivity accounting computer techniques, first developed by OAS in 1965, were simplified to permit a manager to construct a production model of his organization after a few hours training. By early FY 1970, a representative from each Commerce bureau and office will have been trained in the construction of models and their application to manpower forecasting and cost-center budgeting. The program now provides the basis for the OAS budget.

The centralized procurement function continued to produce significant savings. A total of $269,123 was realized through the application of effective management controls and review of proposed procurements. Of this figure, a total of $28,843 was saved as a result of the typewriter procurement control program administered by OAS. In addition, $15,654 was saved by use of blanket purchase orders and quantity purchases of calculating and adding machines.

The value of contracts set aside for the Small Business Program again was increased. The value of such contracts for the fiscal year was $2,873,000, an increase of $326,069 over the previous year.

The study of bureau supply management practices was extended to all bureaus and offices. Necessary data was obtained and supply practices were reviewed by actual on-site surveys. One of the outstanding contributions to this program was an agreement reached with the Defense Supply Agency (DSA) whereby DSA will furnish Department of Commerce (DOC) installations with logistics support. This agreement will permit Commerce activities to obtain supplies from 13 DSA Centers by use of the GSA-FEDSTRIP method of requisitioning. Immediate

benefits under the DSA/DOC Interagency Supply Support Agreement will be better prices, improved delivery times, and top quality products.

A new concept of direction to the Department's accident-prevention program was inaugurated, with daily operations handled by a program coordinator on the OAS staff, and rotation of the Safety Committee Chairmanship among bureau safety officers. This change in operations is aimed at program improvement and more active participation by the bureaus in the development of general procedures and techniques. Continuing its support of the Government-wide campaign to reduce Federal work injuries 30%, the Department achieved a 52% reduction in its injury rate as of the end of FY 69, exceeding the 1970 goal.

The long-range plan to reduce the number of Commerce locations in the D.C. Metropolitan area is proceeding as scheduled. The Department now has 13 locations as compared with 15 at this time last year. The project now underway to renovate, alter, and air condition the Commerce Building will substantially contribute to the completion of this plan. Stage 1 of the project will be completed on September 26, 1969, with completion of the entire renovation project scheduled for June 7, 1971. Current plans are to move the Maritime Administration from the GAO Building into renovated space in the Commerce Building.

The Records Management Program conducted by the Office of Administrative Services for the Office of the Secretary and constituent units made a significant contribution to economical and efficient operations with over 2,350 cubic feet of records being removed from operating space. This activity was highlighted by a complete purge of old records from those needed for current operations in the Central Accounting Division. The removal of superfluous papers helped bring into sharp focus many of the situations that were delaying the processing of action papers. Overall removal of papers resulted in a cost avoidance of over $18,000 which included the value of 358 file cabinets and 2,140 square feet of floor space that were re-used. In addition, over $17,000 was saved by review and disapproval of requisitions for new filing equipment that were not justified under established criteria for such purchases. As a part of the Departmental effort to place the hard core unemployed in jobs, the Records Management Officer was assigned to make a study of the National Alliance of Businessmen (NAB) and to prepare systems for the management of its records and reference materials. A manual entitled "Records Maintenance and Files Classification," which contains a complete records management program, was submitted to and adopted by NAB.

The Departmental Library loaned more than 90,025 books and periodicals and answered almost 48,595 reference requests received from Commerce personnel, other Federal agencies, and the general public. To other libraries it loaned 3,175 publications, borrowing in turn 1,979 items from the Library of Congress and other libraries to provide additional resources required to service Department needs. At the close of the Fiscal Year the cataloged collection contained 410,727 volumes, the law collection 34,824 volumes and 1,958 periodical titles were currently being received.

Emergency Readiness

Organizational units of the Department having emergency responsibilities completed the revising and updating of their respective Emergency Readiness Plans.

In addition to the information provided by manual and handbook, briefings were held for the Secretary, Secretarial Officers, the General Counsel, and other key officials on the emergency plans and preparedness programs of the Department.

The Department continued to provide administrative support, including communications, to the Department of Transportation; Interstate Commerce Commission; Civil Aeronautics Board; and Central Supplies Agency. Under a Memorandum of Understanding, the Department provides this support to the Department of Transportation at the Department of Commerce Headquarters Emergency Operating Facility.

The Department's "Alerting Schedule," a procedure for alerting Secretarial Officers, the General Counsel, and the heads of those bureaus and offices responsible for carrying out assigned emergency functions in the event of a Defense Readiness Condition was revised in September 1968.

As required by the Department's Emergency Essential Records program established in FY 1966, all emergency records prepositioned for the Office of the Secretary and appropriate staff offices at the Department's Headquarters Emergency Operating Facility were reviewed and updated during this reporting period.

The Department continued efforts to increase the emergency communications capability at the Department's and Bureaus' Headquarters Emergency Operating Facilities. The communications facilities interconnecting these sites were substantially upgraded during the reporting period.

Three communications tests were conducted at the Department's and Bureaus' Emergency Operating Facilities. These tests were a part of regularly scheduled government-wide exercises. Members of the Emergency Communications Corps participated in these exercises from the Department's Headquarters Emergency Operating Facility.

As a supplement to the Emergency Communications Corps, a "housewife" program was initiated. Housewives, living in the immediate vicinity of the Depart-

ment's Headquarters Emergency Operating Facility, are employed on a WAE (when actually employed) basis, given a two-week intensive orientation and training program and started on a two-day per month training program.

Under the provisions of Department Order 149, "Department Assistance in Disasters," the various bureaus and offices of the Department responded to a wide range of natural and major disasters. The Environmental Science Services Administration also operates the national weather services and provides special severe weather warning services including storm warnings (tornado, hurricane, cold wave, heavy snow and blizzards) and the forecasting of floods and the issue of flood warnings. It also operates the Seismic Sea Wave Warning System to provide warning of potentially destructive seawaves in the Pacific Ocean area. The Business and Defense Services Administration gives priority assistance, including loan of equipment to industries with defense contracts. The Maritime Administration provides use of ships; floating equipment and supplies; and shoreside installations, for transportation shelter and storage.

The Department of Commerce National Defense Executive Reserve program was established in 1956 under the authority of the Defense Production Act of 1950, as amended, and is administered by the Assistant Secretary of Commerce for Administration.

The Secretary delegates to the head of each bureau the authority to establish, the approval of the Assistant Secretary for Administration, a complement of reservists to carry out program objectives at the national and field levels; to establish appropriate and specific qualifications standards for selection of their reservists; and to institute a program of orientation and training sessions to prepare their reservists for an assignment in the event of an emergency. Five bureaus and offices of the Department have been authorized to establish and maintain complements of Executive Reservists.

Enrollment in the Department of Commerce unit of the Executive Reserve has progressed over the past five fiscal years as indicated below:

1969 - 1838 + 121 Emeritus
1968 - 1698 + 101 Emeritus
1967 - 1755
1966 - 1719
1965 - 1667

Appeals Board

The Secretary has delegated to the Appeals Board authority to consider and decide disputed claims arising under contracts entered into by the several bureaus within the Department. The Board also hears appeals from the public in respect to certain export licensing actions and the Department's regulation of foreign excess property imports. Decisions of the Maritime Subsidy Board in administering the ship construction and operating subsidy program are subject to review by the Secretary of Commerce on petition from the private parties affected. During fiscal 1969, the Appeals Board Chairman, as a special assignment under the supervision of the General Counsel, performed the analytical and other staff work required in connection with these petitions for Secretarial review.

At the beginning of fiscal year 1969, there were pending three maritime subsidy cases, and thereafter eighteen new cases were received (most towards the end of the fiscal year) and fourteen disposed of, leaving seven pending as of the end of FY 1969. In addition, there were four contract dispute cases pending at the beginning of fiscal 1969, and thereafter, two new cases were received and two disposed of, leaving four cases pending disposition at the end of FY 1969. In the export control area, there was one appeal case pending at the beginning of fiscal year 1969, and thereafter during the year six new cases were received, and six disposed of, leaving only one appeal pending at the end of FY 1969.

PUBLIC AFFAIRS

The Department's series of economic education pamphlets for the layman, *Do You Know Your Economic ABC's?*, reached ten in number with publication of *Travel USA* and *The Marketing Story*. The new booklets deal with the role of tourism and marketing in the United States economy. By the close of the fiscal year, sales of the booklets in the series exceeded 440,000 copies, according to the Superintendent of Documents. Editing was completed on the eleventh pamphlet in the series, *Uncle Sam Counts–Census '70.*

In functioning as the Department's informational nerve center, the Central News Room reviewed and issued 2,326 news releases to the communications media and the general public, including 303 from the Office of the Secretary. In addition, the News Room handled distribution of over 500 recurring releases on foreign trade and statistical reports of the Census Bureau, overseas business information reports of the Bureau of International Commerce, and economic reports of the Office of Business Economics, which are made available to editors, broadcasters and correspondents on a demand basis.

Special emphasis was placed upon acquainting the public with the programs and objectives of the newly created Office of Minority Business Enterprise designed to give minority entrepreneurs "a piece of the action."

Stepped-up efforts to redress the balance of payments accounts and strengthen the competitive position of the United States in world markets caused the Office of Public Affairs (OPA) to undertake a broad public information program with respect to international trade policies and goals.

In view of the approach of the 19th Decennial Census, special efforts were launched to extend public understanding of and participation in the Big Count, which commences April 1, 1970.

As part of a reorganization to streamline operational structure, the Office of Public Information was abolished and its functions assigned to the Office of Public Affairs under the direction of the Special Assistant for Public Affairs.

Now in its seventh year, the innovative and widely imitated Commerce Sunday Feature Service provided editors and broadcasters across the country with 21 feature stories of popular interest. Indicative of the range of subject matter were such titles as "Protect Your Family from Tornadoes," "Commerce Helps Launch Minority Enterprise," "The World's Tightest Clam—the Census Bureau," "Scientists Study How To Resist Earthquakes," and "The Nation's First Patent Laboratory." Distribution of the Service was extended to include some 350 major newspapers, syndicates, radio and TV outlets, with a potential audience exceeding 50 million.

A slide presentation with taped narration describing the work of the Department was produced and distributed to the 42 field offices for showing to civic groups, schools and other audiences.

Reflecting the impact of new leadership, plans were laid for several public affairs projects to improve and expand communications services. These included a Departmental magazine to reflect the diversity of Commerce public service programs, a daily broadcast service for radio stations, and a clip sheet for weekly newspaper editors.

LAW AND LEGISLATION

Legislative Activities

Legislative activities of the Department, including the preparation or review of legislative proposals originating within the Department, reports to the Budget Bureau and the Congress on proposed or pending legislation, oral testimony before the Congressional Committees and reports on enrolled enactments, are coordinated and supervised by the Legislative Division of the Office of the General Counsel.

During the year the Department received requests for comment on over 900 items of legislation, including more than 600 requests from the Congress. Departmental witnesses testified at about 75 Congressional Committee hearings (exclusive of appropriation hearings). The Department drafted almost 50 legislative proposals.

Laws enacted during the year, which involved new programs or new administrative responsibilities of the Department, were:

Export Expansion Authority for Export-Import Bank, P.L. 90-390;
Standard Reference Data Act, P.L. 90-396;
Extension and Amendment of Mobile Trade Fair Act, P.L. 90-434;
Housing and Urban Development Act of 1968, P.L. 90-448;
Metric System Study, P.L. 90-472;
National Water Commission Act, P.L. 90-515;
Intergovernmental Cooperation Act of 1968, P.L. 90-577;
Leave of Absence for Federal Employees in Certain Cases, P.L. 90-588;
Radiation Control for Health and Safety Act of 1968 P.L. 90-602.
Waiver by the United States of Certain Claims for Erroneous Overpayments of Pay to Federal Employees, P.L. 90-616; and
Amendments to the Manpower Development and Training Act of 1962, relating to seasonal employment in the construction industry, P.L. 90-636.

Domestic and International Business

Legal services were provided to various agencies of the Bureau of International Commerce, the Business and Defense Services Administration, and to the Interagency Textile Administrative Committee in connection with the Long-Term Arrangement Regarding International Trade in Cotton Textiles, and other textile programs. In addition, legal services were also provided to the Foreign-Trade Zones Board in connection with the processing of zone applications. Specific activities included assisting in the implementation of the Joint Export Association Program; assisting in the administration of the priorities and allocations powers under the Defense Production Act of 1950; participation in the

administration of the Florence Agreement implementing legislation; and the allocation, in cooperation with the Department of the Interior, of quotas under P.L. 89-805 for the duty-free entry into the customs territory of the United States of watches and watch movements assembled in the insular possessions. In addition to the usual matters arising under the administration of the Export Control Act, and the development of regulations carrying out the purposes of the Act, considerable time was expended in connection with the various proposals to amend and extend the Act beyond its termination date of June 30, 1969. In enforcing the Act, 9 charging letters were issued against 14 American and foreign parties, 19 compliance orders were issued against 37 respondents and 3 cases were referred to the Department of Justice for enforcement of administrative subpoenas.

Science and Technology

Within the Science and Technology area, legal services during the past year resulted in significant developments in existing programs, as well as the addition of new projects and expanded assistance to continuing efforts. Legal advice was provided for legislative proposals in such major activities as weather modification, marine sciences, telecommunications and occupational health and safety. Significant legal advice was also provided in developing a Concurrent Resolution on International Standards, and in preparing for balloting a proposed revision to the Softwood Lumber Standard. Procedures were also developed by this office to implement the Department's responsibilities under the Flammable Fabrics Act Amendments and the Fair Packaging and Labeling Act. With respect to the Flammable Fabrics Act, this office also assisted in drafting proposed findings that new flammability standards may be needed for both wearing apparel, and carpets and rugs which were published for public comment. Substantial legal assistance was also provided in the development of uniform regulations for the states to discourage deceptive labeling, and undue proliferation in packaging. Advice was also given to the states in the development of uniform laws to enforce on-site inspections for violation of weights and measures, and other inspection laws consonant with recent Supreme Court cases. In telecommunications, considerable legal advice was provided respecting the President's program in this area. Assistance was also provided in drafting Executive Orders and related matters affecting the electromagnetic spectrum. This office also drafted an interim report on NBS site jurisdiction as well as memoranda affecting patent policy, copyright, personnel, and contracts matters. Further, Departmental involvement in the Marine Sciences required the devotion of extensive legal research and advice during the year. Much of the ground work was completed on intricate and difficult issues such as the extent of coastal state sovereignty of resources on the deep sea bottom. Legal assistance connected with these issues involved attendance at many meetings throughout the year with representatives from other Agencies, and attendance at two U.N. Committee meetings. Other work in international law included review of international aviation affairs, including two proposed treaties and amendments to the Warsaw Convention, and research into foreign standardization statutes. Several cases involving aircraft crashes have required legal assistance during the past year. Participation in these cases necessitates attendance by the attorney at hearings of the National Transportation Safety Board, and interviews with ESSA witnesses. It also involved cooperation with Department of Justice Attorneys in such cases as were subsequently litigated. The total workload of the science and technology area has increased significantly during the fiscal year.

Administration

Legal services were provided to support Department-wide administration and housekeeping operations in areas such as procurement, personnel, budget, appropriations, property management and disposal, Federal tort and other claims, security and emergency planning. About 1,000 contracts, contract items, and grants were reviewed, and other contract-related problems (awards, disputes, etc.) handled. Departmental regulations and orders involving delegations of authority, organization, and procedures were drafted or cleared. Legal advice or action also was rendered or taken in connection with specific problem areas as: access to information under the new Public Information law, employee conflicts of interest, Civil Rights Act (Title VI), equal employment opportunity and general litigation.

An additional attorney assigned to centralized procurement operations during this FY enabled us to provide substantially quicker, more thorough and effective in-depth legal support to that significant Department function which was urgently needed.

PROGRAM PLANNING

On June 7, 1968, the Secretary established the Office of Program Planning as a Departmental staff office within the Office of the Secretary. The Director of the Office of Program Planning reports to the Secretary of Commerce and acts as the Secretary's principal adviser in the evaluation of Departmental programs and policies. The

Office is charged with the development of long-range goals and objectives for the Department, and the design and implementation of program management, evaluation, and information systems (including Planning-Programming-Budgeting System) necessary to carry out these goals and objectives. The Office presently has two divisions—Policy Development and Program Evaluation.

GENERAL ADMINISTRATION

Summary of Employment and Financing--1965 to 1969

	End of year employment					Obligations (in thousands)				
	1965	1966	1967	1968	1969	1965	1966	1967	1968	1969
General funds:										
General Administration:										
Salaries and expenses	282	281	271	290	312	$4,232	$4,322	$4,179	$4,528	$5,168
Total, Other funds[1]	552	473	434	539	551	6,257	6,575	7,212	7,306	8,167
Total, All funds	834	754	705	829	863	10,489	10,897	11,391	11,834	13,335

[1] Other funds include public enterprise funds, intra-governmental funds, and trust funds. Included is employment but not funds, for allocation accounts carried in the budget schedules of other agencies. Amounts for advances and reimbursements include reimbursements between Commerce appropriation accounts as follows: 1965—$5,818,000; 1966—$6,155,000; 1967—$6,716,000; 1968—$7,232,000; 1969—$7,546,000.

GENERAL ADMINISTRATION

(Selected Workload Data)

Item	Fiscal years				
	1965	1966	1967	1968	1969
DEPARTMENT SPACE (000's of sq. ft.):					
Office of the Secretary	269	274	280	261	276
Economic Development Administration	41	60	135	133	101
Office of Business Economics	40	53	53	58	60
Bureau of the Census	481	481	481	496	496
Domestic and International Business:					
Office of Administration	38	38	43	39	39
Office of Publications and Information					
Business and Defense Services Administration	75	76	76	87	83
Office of Field Services	5	5	5	6	6
Bureau of International Commerce	113	118	112	120	127
Office of Foreign Commercial Services	.....	.....	.....	10	9
Environmental Science Services Administration	.....	675	700	677	755
Patent Office	546	558	580	730	670
National Bureau of Standards	1,171	1,600	2,200	1,447	1,470
Maritime Administration	152	159	159	163	167
Office of Minority Business Enterprise	.....	.....	.....	.....	9
Office of Foreign Direct Investments	.....	.....	.....	.....	42
U.S. Travel Service	.....	.....	.....	.....	7
Total	3,748	4,292	4,929	4,227	4,317
SURPLUS PROPERTY DISPOSED (in 000's)	$11,457	$10,481	$9,424	$10,690	$10,682
EXCESS PROPERTY UTILIZED (in 000's)	$ 6,294	$ 7,142	$7,638	$10,315	$656

BUSINESS ECONOMICS AND STATISTICS

INTRODUCTION

The Assistant Secretary for Economic Affairs is the principal adviser to the Secretary and other Department officials on current economic policy and long-range economic programs. In addition, he provides policy direction and supervision to the Office of Business Economics and the Bureau of the Census and serves as the Department's liaison with the Council of Economic Advisers. He is aided in discharging these responsibilities by the Deputy Assistant Secretary for Economic Affairs and the Deputy Assistant Secretary for Economic Policy Review.

HIGHLIGHTS OF 1969

- In a meeting during FY 1969, the Economic Advisory Board, composed of business and university economists, covered a wide range of economic issues including the income tax surcharge and the economic outlook for 1969.
- A new publication, *The Dictionary of Economic and Statistical Terms,* to aid in the use and understanding of publications and press releases of the Bureau of the Census and the Office of Business Economics, was substantially completed and scheduled for release early in FY 1970.
- A comprehensive study of the methods of accounting for Federal Government receipts, expenditures, and financial activities was published by the Office of Business Economics (OBE).
- OBE published estimates of personal income for all standard metropolitan statistical areas (SMSAs) for the first time in the May 1969 issue of the *Survey of Current Business.*
- The first article analyzing the role of direct foreign investments of U.S. corporations in U.S. export trade was published in the May 1969 issue of the *Survey of Current Business.*
- A study of "Some Major Issues in Productivity Analysis" was published in the May 1969 issue of the *Survey of Current Business.*
- In preparing for the 1970 Decennial Census, extra efforts were expended and special techniques were tested and incorporated to prevent underenumeration of minority groups.
- A computer program to suppress confidential detail in statistical reports was developed and successfully implemented.
- An orientation program was developed for educating users in the availability of data products and services from the 1970 census and for encouraging users to work together and pool their resources for acquiring and using these products.

OFFICE OF THE ASSISTANT SECRETARY OF COMMERCE FOR ECONOMIC AFFAIRS

The Assistant Secretary was the Secretary's alternate on the Cabinet Committee on Economic Growth, the Cabinet Committee on Economic Policy, the Cabinet Committee on Price Stability, and the Coordinating Committee on Economic Planning for the End of Vietnam Hostilities. He represented the Department on

the President's Committee on Manpower (subcommittee on Manpower Coordination), the Committee on the Economic Impact of Defense and Disarmament, and the Economic Policy Committee of the Organization for Economic Cooperation and Development (OECD). He also served on the Joint Commission on the Coinage, the Task Force on Requirements for the Housing Program (of the Cabinet Committee on Economic Policy), was a member of the Foreign Direct Investments Appeals Board, and was responsible for organizing and directing the Commerce-Labor Study on Seasonality in the Construction Industry. He was active in the public debate on the 1970 Census and also gave testimony before the Senate Subcommittee on Constitutional Rights.

The Deputy Assistant Secretary served on the Foreign Direct Investment Appeals Board, was a member of the Working Group on Export Tax Incentives of the Interagency Committee on Export Expansion, was a Technical Adviser for the Annual Meetings of the International Monetary Fund (IMF), held in Washington, and was subsequently a member of the U.S. Delegation at the IMF Consultation with the U.S.

The Economic Advisory Board, composed of business and university economists, held one meeting during FY 1969 to advise the Secretary on economic policy questions. The meeting covered a wide range of economic issues including the income tax surcharge and the economic outlook for 1969.

Price developments were reported on a weekly basis to the Council of Economic Advisers by the Office of the Assistant Secretary with continued emphasis on special analyses and reports of significant price changes.

The Assistant Secretary continued an important effort begun in the latter part of the previous fiscal year to enhance the usefulness and public understanding of the economic data and analyses published by the Bureau of the Census and the Office of Business Economics. Efforts were made to improve the quality of publications and to acquaint the public with the Department's vast range of economic statistics and their value in identifying and understanding both national and local problems.

Where complicated economic issues were involved or there was strong interest, the Assistant Secretary issued special explanatory statements and conducted press briefings on such subjects as trade figures and indicators of economic activity.

OFFICE OF BUSINESS ECONOMICS

Functions

The Office of Business Economics (OBE) provides a systematic quantitative description of the Nation's economic process and structure in the framework of the national economic accounts; and prepares analyses based mainly on the information contained in the accounts, of the short- and long-term economic outlook, of emerging economic problems, and of alternative policies that might be adopted to deal with them.

The program is achieved through the following activities:

- Preparation, development, and analysis of the U. S. National income and product accounts: The U.S. national income and product accounts, summarized by the gross national product (GNP), provide an up-to-date overall view of national production; its distribution, and its use, as shown by the interrelated receipts and expenditures of producers, consumers, investors, government, and the foreign customers of the United States.

- Preparation, development, and analysis of the U.S. input-output accounts and of time series of the volume of output of each of the industries of the Nation: The input-output accounts supplement the national income and product accounts by providing a close-up of the manner in which the industries of the Nation interact in the production of the national output. Time series of industry output are used to study real gross national product, prices, productivity, and the cost-price structure on an industry basis.

- Preparation, development, and analysis of statistical measures that reflect the economic situation in various parts of the Nation: These accounts provide a regional profile of our economy, by States and smaller subdivisions. At present, the measures provided consist largely of estimates of personal income, classified by type of income and industry of origin.

- Preparation, development, and analysis of the balance of payments accounts and related data: The balance of payments accounts further elaborate the national income and product accounts by providing a complete and systematic view of all economic transactions between the United States and foreign countries.

- Analysis and projection of accounts: This includes surveys and analyses of business anticipations, the development of an econometric model of the economy, regular reviews of the business situation, and

special studies of various aspects of national economic growth.

The national concern for stability, growth, and the distribution of income has focused increased attention on the role of OBE's economic intelligence. Responding to the continuing and growing demand for more comprehensive, exact, and timely information, OBE initiated a number of advances in the national economic accounts and related analyses during the last fiscal year. The most significant improvements are summarized below.

NATIONAL INCOME AND PRODUCTS ACCOUNT

Capital Stock Study

Measurement of fixed business capital in the United States was updated to extend the estimates through 1968. The latest information on investment in producers' durable equipment and nonresidential structures by business firms and nonprofit organizations was published in the February 1969 issue of the *Survey of Current Business.*

Anatomy of Federal Accounts

An extensive manuscript which analyzes and explains the methods of accounting for Federal Government receipts, expenditures, and financial activities was prepared. The complex accounting system of the Government is reviewed, agency by agency, and all of the complexities–trust funds, nonappropriated funds, deposit funds, foreign currency purchases, etc.–are explained. Conversion of the raw data, step by step, to a national accounts basis is included. A balance sheet and a receipts and expenditures statement is shown for each agency. The study will serve as a reference source for accountants and economists who need to work with and understand Government finances. Because of the unusual size of the volumes, only a limited printing is feasible. However, a set of the volumes will be placed in each Commerce Department Field Office for general reference.

INPUT-OUTPUT ACCOUNTS

1963 Input-Output Table

OBE made substantial progress towards the completion of its benchmark input-output study for 1963. The 1963 estimates represent a considerable improvement over those previously prepared for 1958. The level of industry detail has been increased approximately fourfold to provide data for about 350 industries. The expanded, finely detailed industry patterns of sales and costs of production will make an important contribution to the analytical framework needed in economic decision making.

Gross Product Originating by Industry

Responding to a growing interest by the business community in the annual estimates of gross product originating by industry, OBE furnished an increasing number of special tabulations of information underlying the published data on industry output and prices. Business analysts and others are recognizing the importance of the measures of industrial sources of economic growth, productivity, and changes in cost-price relationships.

REGIONAL ACCOUNTS

Publication of Local Area Income

OBE published estimates of personal income for all standard metropolitan statistical areas (SMSA's) for the first time in the May 1969 issue of the *Survey of Current Business*. Measurements for selected years which currently extend through 1967 have been completed. The series will be extended annually to provide continuous measurements from 1965. Additional unpublished detail is available for metropolitan and other local areas.

Disposable Personal Income

OBE completed revised estimates of State disposable personal income and per capita disposable personal income for 1948-1967 and preliminary 1968. A special article analyzing the most recent developments in the new series and longer term trends was published in the April 1969 issue of the *Survey*. Measurements of disposable income are increasingly of concern in the analysis of comparative financing of State and local governments and in the analysis of personal consumption and saving potentials.

Migration of the Work Force

Special tabulations of work force migration by State and metropolitan area were completed. Gross migration patterns for age-sex-race-industry and wage groups are available annually beginning with 1960. Tabulations can be provided for any local area comprising a combination of counties.

Personal Outlays

Personal outlays were measured experimentally as part of a program to extend the personal income accounts to an income and outlay basis for all States.

BALANCE OF PAYMENTS ACCOUNTS

Exports to Foreign Affiliates of U.S. Firms

The first article analyzing the role of direct foreign

investments of U.S. corporations in U.S. export trade was published in the May 1969 issue of the *Survey of Current Business*. This article analyzes 1965 data covering 330 U.S. corporations and their 3,579 foreign affiliates. It provides, in considerable detail, information on total exports of the parent companies, and total purchases of U.S. exports—from parents and others—by the affiliates.

Classification of Trade Data by End-Use of the Commodities

U.S. merchandise export data by end-use commodity groupings were presented for the first time on both a seasonally adjusted and unadjusted basis in the December 1968 issue of the *Survey*. Since the March 1968 issue of the *Survey*, data has been published seasonally adjusted on agricultural and nonagricultural exports on a quarterly basis for major countries and balance of payments areas.

Foreign Investment Survey

OBE proceeded with its comprehensive survey of American business investments in foreign countries. This survey, which will show changes in the pattern and distribution of foreign investments, is the first undertaken by OBE since 1957. Current information of this nature is needed by Federal agencies engaged in programs to improve the U.S. balance of payments, agencies which administer technical assistance and economic development programs, and numerous business and industry groups.

Foreign Grants and Credits by the U.S. Government

In November 1968, OBE released issue number 80 of *Foreign Grants and Credits by the United States Government*, a report prepared for the use of the Congress and Government agencies. The new 48 page issue includes detailed enumerations of the grant and capital outflows and inflows, and interest inflows, occurring in each calendar year 1965-67. The information is presented by country for each of the Government foreign assistance and related programs. The pamphlet also serves as a reference for a revised quarterly series, 1960-67, which supplements the summary analytic tables on Government grant and capital transactions which have been published in the *Survey of Current Business* since 1966.

ANALYSIS AND PROJECTION OF ACCOUNTS

Special Studies

Productivity Analysis," which appeared as Part II of the May 1969 issue of the *Survey*, dealt with the importance of factor input and productivity growth in the overall growth of the economy. The second article, "A Fiscal Policy Model of the U.S.," appeared in the June 1969 issue of the *Survey*. Still in a formative stage, the model examines the sensitivity of the economy to changes in various types of taxes and Government expenditures designed to achieve given targets of growth or unemployment.

Evaluation of Manufacturers' Inventory Positions

The survey of manufacturers' sales and inventory anticipations was expanded to include more specific information in imbalances in inventories. The results of this survey, which appear quarterly in the *Survey of Current Business*, now provide information on the amounts by which companies consider their inventories to be higher or lower than desired.

Plant and Equipment Expenditures Survey

Working with the Securities and Exchange Commission, OBE completed nearly all the research necessary to carry out a basic benchmark revision of the quarterly data on business plant and equipment expenditures.

BUREAU OF THE CENSUS

Functions

The Bureau of the Census is a fact-finding and statistical service agency. It conducts censuses at 10-year intervals in the fields of population, housing, irrigation, and drainage, and at 5-year intervals in the fields of agriculture, business, manufactures, mineral industries, transportation, and State and local governments. The Bureau also conducts current surveys in many fields covered by the censuses, and it compiles and publishes the official figures on U.S. foreign trade.

The Bureau provides assistance on a reimbursable basis to Federal agencies and others in the collection and processing of data, the design of samples for surveys, and the preparation of special tabulations.

Program and Product Improvements

During fiscal year 1969, a basic change was accomplished in the design of the sample used to develop monthly estimates of retail sales for the United States, census regions and geographic divisions, and the larger States and standard metropolitan statistical areas. This redesign has resulted in greater consistency between the monthly series and quinquennial census statistics and a substantial reduction in the sampling error associated with estimates of monthly sales levels.

The Foreign Trade Statistical Regulations were amended to permit the filing by exporters of monthly summarizations in lieu of filing Shipper's Export Declarations for individual shipments to Canada and to the noncontiguous territories of the United States. This procedure has reduced the processing burden of exporters to these areas as well as the cost of compilation in the Bureau of the Census.

Effective with the June 1969 statistics, authority was granted to an individual exporter to furnish to the Census Bureau punch card data for its surface (nonvessel, non-air) shipments to Canada, in lieu of Shipper's Export Declarations. This is the first time that punch cards have been submitted to the Census Bureau by an exporter in lieu of Shipper's Export Declarations for shipments to a foreign country. Previously, punch card input in lieu of Shipper's Export Declarations had been accepted on an experimental basis for a portion of the shipments from New York to Puerto Rico. This procedure was expanded in January 1969 to cover all such shipments from New York to Puerto Rico, a change which is expected to reduce the Census Bureau processing workload by about 100,000 line items of data (cards) annually.

Conversion of the Current Population Surveys processing to the UNIVAC 1107/1108 computer complex, completed in fiscal year 1969, has resulted in a substantial expansion in data output, both to the Department of Labor and the Bureau of the Census, at a minimum increase in cost and at a significant savings in calendar time. These much needed analytical data provide important insights into our rapidly changing economy.

Business Cycle Developments was expanded, revised, and renamed during the fiscal year. The first issue of the revised version, entitled *Business Conditions Digest* (BCD), was published in November 1968. Most of the content of the previous publication was retained, and several new sections were added to more readily serve the needs of analysts and forecasters whose approaches are different from the cyclical indicators approach emphasized in the previous version. The added sections contain data on the gross national product and its major components, anticipations and intentions surveys, and the balance of payments accounts. In addition, composite indexes of leading, coincident, and lagging indicators, selected price indexes, and various critical analytical ratios were included.

Since the enlarged publication takes longer to print and distribute, an advance report consisting of the *BCD* summary table is prepared and released two days in advance of the complete monthly report. This helps to speed up the availability of data to the public because the advance report, due to its faster handling in the mails, is expected to reach the subscribers as much as one week ahead of *BCD*.

After completion of the developmental work by an interagency committee and publication of experimental issues during the preceding fiscal year, *Defense Indicators* was molded into a regular monthly publication. This companion report to *BCD* brings together the principal time series on defense activity which influences short-term changes in the national economy.

During the past year, map reproduction and related processes have been altered in a fashion that will substantially reduce the costs of preparing copies of county maps showing 1970 census boundaries. This change will result in major reductions in the charges to the numerous purchasers of these maps in both the public and private sectors of the Nation.

The International Statistical Programs of the Bureau grew substantially in fiscal year 1969. The man-months of training supplied to foreign participants increased 17 percent. In all, a record number of 71 countries were represented by participants training at the Bureau during fiscal year 1969. The Bureau's program of supplying advisory services to developing countries under the program of the Agency for International Development served an increased number of countries in fiscal year 1969 (42) while the number of man-months of advisory services declined, reflecting greater use of regional and short-term consultative assignments in which more effective use was made of each advisor's talents.

The "Indicator for Program Management," a high level managerial report on the current and projected status of six major programs, was further improved. This report measures cost and progress as compared with the program plan, and current year achievements are compared to prior year experiences. As a part of a continuing effort to provide effective analytical data for program management, improvements in projection methods and analytical indices were incorporated in the report.

During fiscal year 1969, most of the development effort on the 1970 Census automated microfilming camera was directed towards improving performance reliability. This camera was conceived and developed by Bureau personnel, and will automatically photograph the 1970 Census questionnaires in order to provide microfilm input to the computers. A unique feature of this

machine is its page turning device, which makes possible the automatic microfilming of each page of the multi-page census questionnaire. Forty of these automatic cameras will be able to do the work of 250 manual cameras necessary to microfilm the questionnaires in the time allotted.

The Census Bureau has continued to expand its effective work measurement program. By applying work measurement techniques in pretest situations, the Bureau has been able to budget piece-rate payments for approximately 160,000 enumerators, and to determine staffing of approximately 13,000 additional employees needed next year for Census offices throughout the country.

Construction of additional FOSDIC '70 machines, Film Optical Sensing Device for Input to Computers, was continued throughout the year. This electronic microfilm-to-tape converter was conceived and designed by Bureau employees for processing the huge volume of data to be generated from the 1970 Decennial Census questionnaires, and will produce the computer tape from which various statistical reports will be tabulated. The modified FOSDIC '70 machine is almost three times faster than the 1960 FOSDIC and can edit, correct, and do much preliminary data rearranging before actual computer processing begins.

Effective with the September 1968 statistics, the FT 990, "Highlights of United States Export and Import Trade," is now being released simultaneously with the monthly press release FT 900, "Export and Import Merchandise Trade." This simultaneous release makes available within 30 days after the close of the month covered a substantial amount of summarized foreign trade data.

Procedures have been established whereby, on a cost basis, the Bureau of the Census furnishes steamship conferences (a group of steamship lines using the same route), individual steamship lines, and airlines information on their own shipments as compared with total movements. This service has been subscribed to by many users in the transportation industry. The service reflects the utility of foreign trade shipping data in the current dynamics of the industry.

The quality of services to users of transportation data has been improved. In comparison with 1963, additional data from the Truck Inventory and Use Survey is now available. Greater geographic detail in both the National Travel Survey and the Commodity Transportation Survey has been developed as well as a finer commodity break-out in the Commodity Transportation Survey, More data is now available on tape and through special tabulations. Census Bureau staff have been consulting with and advising transportation data users on the availability of information on tape and special tabulations.

The Census Bureau has created, in cooperation with the Bureau of the Budget, "bridges" that permit comparisons to be made with other sources of transportation data. As a result, comparisons can now be made for the Transportation Commodity Classification (TCC), Standard Industrial Classification (SIC), Standard Transportation Commodity Code (STCC), Standard International Trade Classifications (SITC), U.S. Foreign Trade Statistics Codes, and Commodity Classifications for Domestic Waterborne Commerce.

A Central Users Service, which will handle requests for 1970 summary tapes and special tabulations, has been established in the Population Division. Through this service, other agencies, groups, and individuals will have ready access to summary tape tabulations in greater detail than was available from previous census tabulations. Data will now be available by city block, enumeration district, minor civil division, and census tract. In addition, this service will provide information about unpublished data and data available on tape from the 1960 census.

In many applications at the Bureau, clerks have been employed to assign numerical codes to verbal responses. A system for computerizing this process has been developed and used in a large scale production operation. Because it performed well and with great gains in speed and consistency, the Bureau currently is trying to extend coverage and generalize the approach to other applications. This system will be particularly useful in conjunction with character reading equipment, where available. Other Federal and State agencies have expressed interest in the system.

The vast majority of statistical tables published by the Bureau require a determination of which detail must be suppressed to preserve confidentiality. These "disclosure" rules can be extremely complex, especially in economic statistics. A computer program to suppress confidential detail has been developed and successfully implemented. It offers: (a) increased reliability of adherence to the rules for preserving confidentiality, (b) an increase in the amount of publishable detail without relaxation of confidentiality, and (c) great savings in time compared with the extended publication cycle required by clerical application of confidentiality rules.

The population estimates program of the Bureau results in a regular monthly publication giving estimates of total population and two annual publications presenting detailed statistics. During the past fiscal year, the two annual reports were published several months earlier than had been the case in previous years. Simplification of the procedures used, along with efficient, rapid work by the staff, made it possible to publish an advance report of population by age only six weeks after the estimate date, and a report on births, deaths, and migration only 10 weeks after the estimate date. A new

computer program for producing age estimates will enable the Bureau in the future to provide detailed statistics more rapidly, and with less staff time.

The basic steps in the computerization of the Current Industrial Reports program relating to the manufacturing area were completed during fiscal year 1969. This project will enable the Bureau to provide more standardized treatment in the processing of statistical data, thus improving the quality of the information. It also is expected to result in an improvement in the timing of the published results.

The current series, Housing Vacancy Surveys, was expanded to show vacancy rates by a greater number of characteristics. Also, selected characteristics of occupied units were added to the report.

The assistance and guidance necessary to conduct a housing survey was provided, under the Bureau's Technical Assistance Program, to Jersey City, New Jersey.

The processes involved in geographic preparations for the 1970 census have required close liaison between Bureau staff and representatives of local agencies in every metropolitan area. The numerous contacts with local groups have been used effectively to provide them with detailed information concerning census plans so that local knowledge of census activities is far greater now than at any time in the past.

In an effort to provide better service to the users of State and local governments statistics, the Bureau completed 13 reimbursable surveys during the year on such subjects as the school lunch program, mortgage foreclosures, local government zoning and building regulations, and land use within municipalities. The sample used in major surveys of finances and employment was redesigned; a new *Quarterly Survey of Holdings of Selected Public Employee Retirement Systems* was initiated; the Quarterly Survey of Construction Expenditure was converted to a monthly survey; and numerous special tabulations of data were provided to users (local officials, researchers, Federal agencies, and others). In addition, the data collection and processing for the 1967 census of governments were completed and nine major reports were issued or sent to print during the past year.

The quality of the Bureau's services in the field of international statistical development rose as a result of improvements in training materials and methods, as well as innovations in analytical and research services in the population field. The International Statistical Training and Workshop Office inaugurated a comprehensive one-year program of training in population census methods and demographic analysis to train technicians of developing countries for the World Population Census of 1970, while continuing the earlier established program in preparation for the World Agricultural Census of 1970. The International Demographic Statistics Center made substantial progress in the development of demographic data bases for foreign censuses, data display, storage and retrieval systems, computer programs for demographic analyses, and simulation models for analysis of problems associated with population growth. These advances enhanced the quality of services being provided by the Bureau to the Population Service, Office of the War on Hunger, of the Agency for International Development.

THE 1970 DECENNIAL CENSUS

Planning for the 1970 census entailed general methodological planning, with particular concern for the procedures connected with the various census samples and with the coverage improvement program being undertaken for the first time in 1970; evaluation of the dress rehearsals with recommendations for changes where the evaluation results indicated weaknesses; development of a program to evaluate the quality of the 1970 census; preparation of the methods that will be used to weight the data collected on a sample basis in the census, and the methods of computing the sampling errors; beginning work on the sample designs and general survey procedures for the sample surveys that will immediately follow the census and be performed under its authority, e.g., components of inventory change, residential finance survey, survey on barriers to employment, disability survey. Among the associated activities were the development of the computer editing specifications and planning of the first three chapters of the first volume of published reports. Decision was made to produce all 1970 census final tables on the Government Printing Office Linotron photo-composition machine, except chapter A tables, which will be typed. Regularly scheduled weekly meetings have been held since March 1969 with responsible offices to discuss table plans as related to Linotron production.

Decennial procedures were tested in Madison, Wisconsin; Sumter and Chesterfield Counties, South Carolina; and Trenton, New Jersey dress rehearsals. Procedures for the 1970 components of inventory change and residential finance programs were developed and tested. Data tabulation and publication plans were virtually completed and a method of measuring housing quality by estimating the number of substandard housing units in 1970 was developed during the year.

Plans for the 1970 Decennial Census were the subject of a series of hearings held during the year by the Subcommittee on Census and Statistics of the Committee on Post Office and Civil Service, U.S. House of Representatives.

The Secretary of Commerce ordered a reduction in the number of 1970 questions to be asked of three million households (about 10 million persons). This reduction in reporting burden was accomplished by reducing from 25

percent to 20 percent the proportion of households that will receive the 66-question long form, and increasing from 75 to 80 percent the proportion that will receive the 23-question short form. Questions on the adequacy of kitchen and bathroom facilities were reworded to remove any implication, as had been widely alleged, that the Government was planning to ask with whom they are shared. A sample question on ethnic origin was amplified to provide specific identification of each major group of persons of Latin-American descent: Mexican, Puerto Rican, Cuban, Central or South American, other Spanish. The question will provide a means of developing benchmark information for the planning and administration of programs relating to these important minority groups.

Census undercoverage, which distorts the statistics in various ways, has been extremely high for the Negro population in the past. Given the increasing concentration of Negroes in the urban slums, undercoverage might be even greater in 1970 unless methods to improve coverage were developed. Several techniques for coverage improvement have been tested and incorporated into the 1970 census procedures: (a) new techniques for finding the places where people live, (b) new techniques for improving "within household" coverage of persons, including intensified public information through all possible media, (c) public education through the Negro press and "Soul" radio stations, and (d) attempts to improve conditions for enumerators in the areas of recruitment, training, and payment. Tests have indicated that significant numbers of people in difficult-to-enumerate groups might be added to the Census by employing these approaches.

Reflecting the concern over underenumeration of minority groups in large cities, the Bureau has issued a leaflet "We the Black People." This was intended as an aid in the conduct of a campaign to reduce the undercount in the 1970 census and was widely publicized through Negro-oriented radio stations and Negro organizations. A similar leaflet for Mexican Americans, with similar plans for dissemination, was begun in June by a Mexican American consultant. In both instances, the underlying purpose is to encourage radio stations to mention the word "census" frequently and favorably over a long period of time preceding the major campaign in the spring of 1970.

The 1970 census data delivery system was designed to include a broader range of products and services for users than previous censuses. Specifications were drawn up for the First, Second, and Third Count summary tapes; plans have been developed for a microfilm version of the First Count tape and preliminary specifications for public use samples of specially designed basic record tapes.

An orientation program has been developed for educating users in the availability of data products and services from the 1970 census and for encouraging users to work together and pool their resources for acquiring and using these products. As a part of this orientation program, reference materials have been prepared, including the 1970 Census User Guide, the Census User Dictionary, and standardized technical documentation for summary tape files; workshops and conferences on summary tapes and other census products have been conducted; the production and distribution of a test First Count summary tape based on the Madison dress rehearsal census have been arranged for user experimentation; and procedures have been developed for user groups to gain recognition as Summary Tape Processing Centers and for libraries to become Summary Tape Library depositories. These tapes are compilations of aggregate data and do not carry any records by which an individual or establishment might be identified. By law, all individual records must remain in the custody of census officials, and the rules governing their confidentiality are strictly enforced.

CURRENT PROGRAMS

Plans and procedures for the 1969 Census of Agriculture were developed during the year. Mail pretests were conducted of the Agricultural Services and Irrigation Organizations questionnaires in addition to a second pretest of the regular agriculture census forms.

Reduction in the agriculture census funds to be requested for fiscal year 1970 required revision of the schedule for processing and publishing the 1969 census data as well as the introduction of a sampling procedure for farms with limited agricultural operations.

Difficulties were encountered in adhering to time schedules established for the publication of the results of the 1967 Census of Business. The extended use in this census of data contained in tax returns resulted in the exemption of an additional 1,000,000 small business firms from filing census reports. However, delays in the receipt of computer tax data files and matching problems arising from unexpected variations in the tape files caused problems in meeting the publication schedules. In addition, the date for filing census reports was delayed until after the due date for income tax returns in order to reduce reporting difficulties for businessmen. The filing of census reports lagged longer than expected, however. Also, the shortage of qualified personnel, increased complexity of computer operations, and reduction by a full year in the time between censuses contributed to delays in meeting the originally established time schedules.

Effective with the January 1969 statistics, all reports and tabulations involving shipments of merchandise from the United States to Puerto Rico and the United States possessions were expanded to include method of transportation data. Separate data on vessel and air movements have been previously available on movements of commodities in the regular U.S. export trade. The expanded method of transportation statistics

on movements to Puerto Rico and U.S. possessions reflects a demonstrated need for this type of information by users of the statistics.

Effective in January 1969, the export and import merchandise trade statistics now include movements of silver. The inclusion of silver in the export and import statistics reflects recommendations of the Bureau of the Budget and the United Nations.

During 1969, the Bureau successfully undertook surveys in a number of new subject matter areas in order to meet the rapidly expanding needs of program-oriented agencies. For example, a series of continuing urban employment surveys was initiated for the Department of Labor in six designated ghetto areas to provide more extensive information on the employment-related problems of this population. Similarly, the Bureau undertook the first of a series of biennial longitudinal surveys of persons approaching retirement age for the Social Security Administration. These surveys, involving a comprehensive composite of characteristics from current labor force status to attitudes towards retirement, will provide a basis for a continuing evaluation of the Social Security program, as well as recommendations for modifications in existing law.

A review of construction activities for fiscal year 1969 shows increased public service through the release of a new quarterly series of publications on the number of housing units authorized by building permits but not yet started. Monthly statistics also were introduced on the number of housing units authorized by building permits in each of 101 major standard metropolitan statistical areas; and a new quarterly series was initiated releasing statistics on expenditures for residential alterations and repairs. These data had previously been released annually.

In addition to the normal activities devoted to the development and implementation of current survey programs, a number of research projects were undertaken during the year to investigate possible methods of improving enumeration techniques and sample designs for a wide variety of household surveys. Various proposed Census Bureau reports were reviewed for conformance to standards of statistical quality, and a start was made on plans for the post-1970 census revision of the samples for current surveys.

Research into the nature and methods of seasonal and trading-day adjustment, particularly of weekly time series, was continued. Governmental agencies and individuals outside the Bureau showed continued interest in the Bureau's seasonal adjustment advice and services. Thus, the Bureau sold 49 program decks or tapes during the year and processed 293 time series for sponsors outside the Bureau.

Special reports relating to State and local governments which were released during the year included: *Report on National Needs for Criminal Justice Statistics; Criminal Justice Expenditure and Employment for Selected Large Governmental Units 1966-67;* and *Property Assessment Ratio Studies*. A fourth report, *Trends in Assessed Valuations*, is now being printed.

The 1968 edition of the *Statistical Abstract of the United States*, in response to needs expressed by users, introduced a "Guide to Tabular Presentation" which assembles and defines the various symbols and other devices used in the book. The 1969 edition, in preparation throughout most of the fiscal year, includes a summary table on "Recent Trends," which reviews major changes in the U.S. during the present decade. *Pocket Data Book, USA 1969*, the second issue of a graphic and tabular presentation of summary statistics, was issued during the year and work progressed on the *Directory of Non-Federal Statistics for States and Local Areas*, the third in a series.

The intergovernmental services program of the Bureau which was initiated early in 1966 continues to promote interchange of information among planning and statistical officials of Federal, State, and local governments and to provide information on data and services available from the Bureau and other Federal statistical agencies. Two one-week seminars were held in Washington, D.C., attended by government officials from seventy-four cities throughout the Nation.

Other services provided during the year included the publication of two guides: *Census Bureau Programs and Publication, Area and Subject Guide*; and *Guide to Census Bureau Data Files and Special Tabulations*. The publications guide provides a comprehensive review of the statistical programs and of the reports issued by the Bureau in the 1960's. It outlines the programs and activities of the Bureau, defines the geographic areas covered, and describes the latest census information published in each of the program areas and for all major subject fields.

The guide to data files and special tabulations provides information on the accessibility of Census Bureau data not contained in printed reports. It describes the data files and selected special tabulations originating during the period 1958-1968, and currently available, and explains how these materials may be obtained from the Bureau. Statistical summaries only are available, and information which would identify an individual or an establishment are not made available.

During fiscal year 1969 an increase of upwards of 25 percent occurred in the accession of foreign statistical publications under the Bureau's long established program of exchange of publications and technical information with statistical agencies and research institutions in some 130 foreign countries. As a result of this program, knowledge of the Bureau's publications and of its advances in statistical methods and data processing technology continued to become more widely known.

Summary of Employment and Financing–1965 to 1969

	End of year employment					Obligations (in thousands)				
	1965	1966	1967	1968	1969	1965	1966	1967	1968	1969
General funds:										
Office of Business Economics	216	235	236	232	233	$2,348	$2,512	$2,778	$2,919	$3,075
Bureau of the Census:										
Salaries and expenses	2,291	2,218	2,446	2,550	2,531	15,152	15,659	16,360	17,090	18,065
1964 Census of Agriculture	694	452	111	.....	.....	15,532	5,317	1,951	390	.....
19th Decennial Census	211	210	643	1,116	1,163	910	1,483	3,210	6,590	17,944
1967 Economic Censuses	.....	118	313	1,157	411	.....	823	2,899	7,117	7,089
1967 Census of Governments	.....	20	67	72	11	.....	171	1,228	846	535
Registration and voting statistics	.....	1	.....	.....	.....	.....	509	.....	.....	.....
Modernization of computing equipment	.....	.....	6	.....	.....	.....	.....	1,819	3,992	.....
1963 Census of Business, Transportation, Manufactures and Mineral Industries	398	79	.....	.....	.....	5,819	2,607	155	.....	.....
Total, Bureau of the Census	3,594	3,098	3,586	4,895	4,116	37,413	26,569	27,622	36,025	43,633
Total, General funds	3,810	3,333	3,822	5,127	4,349	39,761	29,081	30,400	38,944	46,708
Total, Other funds[1]	1,667	2,538	2,867	2,687	2,149	13,032	18,756	25,765	29,444	24,600
Grand total, All funds	5,477	5,871	6,689	7,814	6,498	52,793	47,837	56,165	68,388	71,308

[1] Other funds include public enterprise funds, intra-governmental funds and trust funds. Included is employment, but not funds, for allocation accounts carried in the budget schedules of other agencies. Amounts for advances and reimbursements include reimbursements between Commerce appropriation accounts as follows: 1965–$394,000; 1966–$280,000; 1967–$619,000; 1968–$1,019,000; 1969–$1,018,000.

BUREAU OF THE CENSUS

(Selected Workload Data)

TABLE I.–REPORTS PUBLISHED

Item	FISCAL YEARS				
	1965	1966	1967	1968	1969
CURRENT PROGRAM:					
Retail, Wholesale, and Service Trade Statistics	102	107	121	122	115
Manufacturing and Industrial Statistics	554	607	659	678	581
Current Population Survey	31	53	52	48	74
Construction Statistics	71	74	89	82	86
Housing Statistics	4	4	6	3	5
Agriculture Statistics	25	24	24	24	25
State and Local Governments	19	17	16	15	22
Foreign Trade Statistics	257	258	225	193	145
Statistical Abstracts and Special Reports	30	113	136	141	75
Geography	([1])	([1])	34	27	7
CENSUSES:					
Decennial: 1960 Population	31	24	2	5	5
1960 Housing	3	1	....	2	....
Governments: 1962	56	....	....	....	....
1967	....	....	....	7	9
Economic: 1958	1	....	....	....	....
1963	786	365	185	37	....
1967	....	....	....	9	18
Agriculture: 1964	....	[2]1,480	[2]1,874	35	....
Special Population Censuses	22	32	27	19	18

[1] Data included in 1960 Decennial Census figures.

[2] Includes preliminary reports.

TABLE II.–REPORT FORMS PROCESSED[1]
(In thousands)

Item[1]	FISCAL YEARS				
	1965	1966	1967	1968	1969
CURRENT PROGRAMS:					
Distribution & Service Statistics	615	683	845	1,030	729
Construction Statistics	([2])	596	564	577	487
Manufacturing Statistics	370	359	362	358	422
State and Local Governments	72	74	76	76	96
Population Statistics[3]	518	526	389	630	630
Housing Statistics	34	34	34	62	71
Foreign Trade Statistics:					
Import Declarations Filed	4,905	5,231	5,455	4,150	[4]4,385
Export Declarations Filed	9,659	9,750	9,243	8,550	8,365
Total Line Items of Data[5]	(9,168)	(9,490)	(9,971)	(10,540)	(10,700)
Agriculture Statistics[1]	(750)	(749)	(480)	(425)	([1]556)
Composite Statistics[1]	(1,995)	(2,490)	(2,050)	(1,800)	([1]1,480)
Total Report Forms	[2]16,173	17,253	16,968	15,433	15,185
REIMBURSABLE PROGRAMS:					
Distribution & Service Statistics	([6])	([6])	([6])	([6])	10
State and Local Governments	([6])	([6])	([6])	14	9
Demographic Surveys	([6])	([6])	([6])	622	17
Civil Defense Services	([6])	([6])	([6])	7,169	550
Total Report Forms	.....	.....	.....	7,085	586
Age Search Applications Received	(200)	(817)	(514)	(550)	(540)
PERIODIC CENSUSES:					
1964 Census of Agriculture	3,200	.....	.....	.....	.....
1967 Census of Governments	.....	65	190	151	.....
1967 Economic Censuses:					36
Transportation	.....	.....	.....	.....	([5]13,769)
Business	.....	.....	.....	([6])	([5] 4,979)
Manufactures	.....	.....	.....	([6])	([5] 1,469)
Construction	.....	.....	.....	([6])	([5] 865)
Minerals	.....	.....	.....	([6])	([7]293,950)
1970 Census of Housing & Population	.....	.....	.....		
Total Report Forms	3,200	65	190	151	36
Total Line Items of Data[5]	.....	.....	.....	.....	([5]21,082)

[1]Table revised to reflect PPB program element categories. Data are presented for all current programs. Agriculture and Composite Statistics workloads are data cells produced from collected data and do not add to Line Items of Data.
[2]Exact data not available for this year.
[3]Includes Current Population Survey only.
[4]Includes in addition to 3,085,000 formal import documents 1,300,000 informal import documents received from Customs.
[5]Total line items of data are cards processed for the program.
[6]Data not compiled for this fiscal year.
[7]Combined total of schedules, envelopes, and instruction sheets requested from printer.

ECONOMIC DEVELOPMENT ASSISTANCE

INTRODUCTION

The Assistant Secretary for Economic Development advises the Secretary on economic conditions in various sub-regions of the United States. He represents the Department of Commerce and the Federal government in programs which assist economically lagging sections to stimulate growth and to bring themselves in line with the Nation's general prosperity. The Assistant Secretary carries out the responsibilities charged to the Department by the Public Works and Economic Development Act of 1965, and is the designated head of the Economic Development Administration established under the Act.

The Special Assistant for Regional Economic Coordination, reporting directly to the Secretary, provides continuing liasion between the Department of Commerce and the several regional organizations established to solve economic problems which overlap State boundaries.

HIGHLIGHTS OF 1969

- The Economic Development Administration (EDA) invested $169.3 million in 303 public works projects to assist 242 areas in developing facilities essential for economic growth.
- EDA approved 44 business development loans totaling $44.2 million for industrial and commercial projects to provide jobs in 40 communities. The agency has concentrated on encouraging existing businesses with experienced management teams to expand or to establish new plants in developing areas.
- EDA approved $13.2 million for 199 technical assistance and research projects. The funds were used to develop techniques for overcoming the basic causes of economic distress and to help 82 individual communities overcome problems barring growth.
- In job training, EDA helped 10,400 persons equip themselves for job opportunities. This training was financed from $22 million set aside annually under the Manpower Development and Training Act for the unemployed in EDA-designated areas.
- EDA continued to emphasize the organization of multi-county economic development districts. This approach is designed to pool resources and talent to solve common problems as well as to overcome distress of a broader scope. The program stresses growth in medium-sized cities to offer an alternative to outmigration and the urban concentration which it produces. EDA in fiscal 1969 helped fund the operation of 103 districts in 34 states.
- Continuing its special concern for the unique problems of Indian reservations, EDA approved a total of $17.3 million to help stimulate economic development and the creation of new jobs.
- The initial meeting of the Federal Advisory Council on Regional Economic Development was called by the Secretary in October 1968. In the October and subsequent meetings this cabinet-level committee of Federal agencies concerned with economic development assisted the Secretary in his review of regional economic development plans and established procedures for coordinating with the regional organizations.

ECONOMIC DEVELOPMENT ADMINISTRATION

Purpose and Basic Policies

EDA provides financial, technical and planning assistance to areas with either high unemployment rates, low median family incomes or a combination of these. This assistance may be provided in several forms:

(1) Grants and loans to help build or expand the basic public facilities needed to help a community attract private industry and to become a desirable location for a wide range of economic activity.

(2) Business development loans directly to private industrial or commercial firms, to local development companies or to local government agencies to help establish or expand job-generating industry in economically lagging areas.

(3) Technical assistance contracts and grants to help areas assess their needs for economic growth, evaluate their resources and plan specific projects aimed at overcoming problems.

(4) Planning grants to assist communities, counties, multi-county districts, States and multi-State development regions in drawing up and carrying out economic development programs.

Qualified Areas

Effective July 1, 1969, a total of 877 areas were qualified for public work grants and business development loans from EDA. Thirty-three other areas qualified for public works grants because of a 6 percent unemployment rate in the previous calendar year.

Qualification is generally on the basis of substantial and persistent unemployment over a period of time as reported by the Secretary of Labor or on the basis of median family incomes that are less than 40 percent of the national median.

A total of 73 areas improved their economies during fiscal 1969 to the point of being removed from the list of areas qualified for EDA assistance. Increasing local unemployment, however, resulted in the addition of 59 communities to the list during the fiscal year.

Communities removed from the list have primarily industrial-type economies in which the unemployment rate has dropped below the 6 percent level needed for qualification. Their improvement resulted from the Nation's continued high rate of economic growth, coupled with local development efforts and assistance from EDA.

Areas qualified at the end of fiscal 1969 are generally made up of rural communities where the decline of extractive industries such as agriculture and mining has eliminated thousands of jobs. These areas tend to be thinly populated counties containing fewer than 25,000 residents. Because EDA's designation criteria generally operate on a county basis, there are few cities eligible for assistance. Although urban centers usually exhibit the type of economic distress with which EDA is concerned, this distress is most often localized within restricted parts of cities; therefore, when considered as a whole, a city's labor and income statistics rarely meet EDA's criteria.

Among the cities which were qualified in fiscal 1969 are San Diego and St. Louis, which improved their economies to the point of de-designation at the end of the year. Major cities continuing on the list for fiscal 1970 were Newark, Oakland, Cleveland, and Washington, D.C. Parts of four other cities also were qualified—the stockyards area of Chicago, the Brooklyn Navy Yard area in New York City, the Watts area of south-central Los Angeles, and the stockyards area of Omaha.

Public Works Grants and Loans

Public works projects are used to support economic growth by providing the physical facilities that are basic to the development and use of human and natural resources.

In fiscal year 1969 EDA approved 303 public works projects for a total investment of $169.3 million. This investment, more importantly, has been made in cooperation with local dollars and interest. It represents a concerted effort to solve human problems and to fulfill needs in 242 affected communities which have not previously enjoyed the prosperity of the Nation.

Of EDA's total approvals in fiscal 1969, $142.9 million was in the form of direct and supplemental grants. An additional $26.4 million was provided through long-term, low interest loans. Non-EDA funding of these projects totaled $105.8 million. From the beginning of its operations in 1965 through June 30, 1969, EDA had made available a cumulative total of $773.7 million for public works and development facilities. The overall cost of the projects was $1,330.3 million with $556.6 million coming from other sources—Federal and non-Federal.

These projects are the result of local initiative and are part of a local effort to dispel the hopelessness and inertia which accompany economic blight.

EDA operates in areas which are, by themselves, unable to provide an environment conducive to economic activity and growth. EDA funds help to provide the facilities to make that activity and growth possible. Where there are jobs but no skilled workers, vocational training can be provided. If there is industrial potential but no utilities to serve industry, water and sewer facilities may be the answer. Where industry cannot market its products—transportation is needed. These are only a few examples of how EDA's public works funds can be addressed to a wide range of needs.

EDA also provides public works assistance to help overcome unusual economic problems through a special area branch concerned with Indian reservations, urban centers, the State of Alaska and American territory outside the continental limits.

The EDA public works program is sweeping not only in geographic scope, but also in the type of economic problems to which it can respond. Fund approvals range from a few thousand dollars to several millions for individual projects.

Demonstrating this broad range are two grants approved in fiscal 1969—one for $5.8 million to help construct a technical skills center in Newark, New Jersey, and one for $14,700 to help build a water line to serve industry in Batesville, Arkansas.

The skills center on the campus of the Essex County Community College will have a 1,500-student capacity principally to serve unemployed and underemployed residents of Newark's core area. It will offer training in several high-grade, well-paying skills, including machine tools, electronics and data processing. It will also provide semi-professional and service courses, basic remedial education and some pre-college training.

The Batesville project will enable a local lumber company to rehire 23 men dismissed because of a fire at its plant. It will also make it possible for other industry to locate in the area.

The problems vary. The solutions are different. But local officials and developers work with EDA to achieve a common goal—to create the conditions that can lead to new jobs and a new way of life for the people who need them most.

Business Development Loans

EDA provides long-term, low-interest loans to help private industry provide the jobs essential to the growth of lagging areas. The agency uses loan funds to help stimulate private capital investment in areas experiencing adverse economic conditions.

In fiscal 1969 EDA approved 44 loans totaling $44.2 million. The agency guaranteed 90 percent of the outstanding balance of nine working capital loans totaling $7.8 million. These working capital loans were made by private lending institutions.

Recipients of EDA loans in fiscal 1969 estimate that they will create more than 9,800 full-time jobs. The 44 loans averaged $1.0 million, and the average number of jobs would be 223 per loan. This would represent an EDA investment of $4,503 per job.

EDA provided 50 percent of the $88.3 million total cost of the 44 projects. Other lenders, including local development companies, provided $19.3 million or 22 percent of the total. Firms receiving the loans invested $24.8 million in equity to complete the financing.

Through its first four years of operation, ending June 30, 1969, EDA had approved 207 business loans for a total of $175.3 million. Other investments in these projects totaled $215.1 million, bringing the total cost to $390.4 million.

EDA business loans can be used to help acquire land, buildings, machinery and equipment for industrial or commercial purposes in qualified areas. Projects must be consistent with the area's Overall Economic Development Program, and each applicant must be approved by an agency of the State or political subdivision directly concerned with economic development. This helps assure that business development ventures will enjoy the local support essential to success.

In fiscal 1969 EDA has encouraged existing businesses with experienced management teams to expand or to establish new plants in lagging communities. Firms with experienced management are more likely to assure the permanency of jobs created. The result was that more substantial firms were attracted to EDA. Approximately 75 percent of the agency's fiscal 1969 business loan funds were invested to help existing companies to expand or to establish new plants. The other 25 percent were invested in new ventures.

Technical Assistance

EDA technical assistance helps provide the knowledge needed to overcome problems blocking economic growth. It may be provided through grants or contracts with professional consultants who can help communities to identify their problems, measure their resources and plan their development.

Because economic development will take different forms to meet the needs of different areas, the versatility of technical assistance makes it an effective tool.

A major trend for the year was the increased emphasis placed on institutional support, both in rural and urban areas. Support of local institutions working to produce jobs helps to assure the maximum participation by the people of distressed areas. Such participation is vital to the success of local economic development programs.

In fiscal 1969 EDA approved 164 technical assistance projects at a total cost of $11.4 million. The cumulative cost of the 658 technical assistance projects approved by EDA since 1965 is $40.5 million.

EDA technical assistance falls into four categories—industrial and resources projects, urban projects, management and operational assistance, and vocational training.

Industrial and resources project activity is directed primarily toward areas designated for assistance under EDA's major financial aid programs.

During fiscal 1969, EDA continued its support of university centers which foster economic development. These centers provide management counseling for small

businesses, offer supplementary services for other EDA activities and assist community groups in development planning. In line with EDA's purpose to make these centers eventually self-supporting, non-Federal funding is increasing substantially.

Industrial and resources support of rural non-profit institutions took many forms during the year. Among groups assisted were a forestry cooperative in the northern parts of Minnesota, Michigan, and Wisconsin; a cooperative working to assist small businesses in Washington State; a planning body working with 17 Indian reservations in Arizona; a group planning economic and social programs for Alaska natives; a multi-county group of low-income rural residents in Alabama; and a council working for economic growth in the mountains of Kentucky, Tennessee, Virginia, Georgia, West Virginia, and Alabama.

Through its urban technical assistance program, EDA has been able to deal with some of the long-term unemployment problems in central city areas not qualified for EDA's other programs. During fiscal 1969, EDA approved $6.5 million for 60 urban technical assistance projects.

A principal objective of urban technical assistance is support for local and national institutions working to stimulate business and industry and to create meaningful jobs in central-city areas.

The stimulation of minority business enterprise has been a cornerstone of EDA's efforts to help in the economic development of core cities. To this end the agency has provided funds for staffing and administration to such organizations as the National Urban League, the National Bankers Association, the American Savings and Loan League, the National Insurance Association, the National Business League, and the Black Economic Union. These groups and others have been assisted in their efforts to promote business development among minorities and to stimulate the flow of capital into center-city areas.

In its training program aimed at preparing men and women who may never have held a job before to accept the responsibility and perform the high quality work required by industry, EDA works with the Department of Labor and the Department of Health Education and Welfare. Under Section 241 of the Manpower Development and Training Act, $22 million has been set aside annually for training the hard-core unemployed in EDA-designated areas. The three cabinet-level departments cooperatively administer the program.

In fiscal 1969, more than 10,400 individuals learned new skills with Section 241 assistance. In some cases plants with job openings have been provided with funds for on-the-job training to encourage the hiring of workers who could not otherwise qualify. About 4,200 unskilled workers were hired and trained under this aspect of the program in fiscal 1969.

In fiscal 1969 EDA also made grants to non-profit organizations engaged in training the hard-core unemployed. Examples included seven Opportunities Industrialization Centers in areas with high unemployment rates. EDA helped pay administrative costs of these centers, which recruit, train and place workers.

Close attention is given to the recipients of EDA business development loans so that they have not only the financial help but also the practical knowledge needed to make their ventures succeed.

Management and operational technical assistance helps to strengthen and expand businesses in EDA-designated areas by providing needed counseling and information. Management and operations projects average about $10,000 in cost and last about three months.

Economic Research

To assure that an effective information and knowledge base is available to personnel operating Federal programs to assist lagging areas, the Public Works and Economic Development Act provides for a continuing program of research and training.

The Act states that EDA's research program "assist in determining the causes of unemployment, underemployment, underdevelopment and chronic depression in the various areas and regions of the Nation, assist in the formulation and implementation of national, State and local programs which will raise income levels and otherwise produce solutions . . . and assist in providing the personnel needed to conduct such programs."

In fiscal 1969 EDA approved $1.8 million for 35 research projects, including special studies to assist Regional Action Planning Commissions.

A major focus of the program during the year was on capital markets—examining the availability of and demand for capital for development purposes. Projects involving this topic are being carried out at Harvard University, the University of North Carolina, the University of Kentucky, and by the Federal Reserve Board. Findings will aid EDA in tailoring its assistance programs for maximum effect.

EDA continued its support of the student intern training program of the Southern Regional Education Board, established by a non-profit compact and supported by 15 member States and several Federal agencies. The program gives undergraduates experience through specific on-the-job work projects in local economic development programs. The Southern program has proved so successful that a similar venture has begun for the Western States under the Western Interstate Commission

for Higher Education. EDA is also providing financial assistance for this program.

In EDA's 1969 research program there has been an emphasis on the development of quantitative data needed for planning regional programs. This information will assist Regional Action Planning Commissions, formed under Title V of the Public Works and Economic Development Act.

Growth Centers

America's transition from a rural to an urban society has been sharply accelerated in the last 25 years as technology has eliminated jobs in farming, forestry and similar industries.

This transition from rural to urban life, however, does not necessarily mean that a man must or should go to a large city. In the central cities, the unskilled rural workers often join the ranks of the unemployed and add to already overwhelming social problems. EDA is working to offer these displaced workers an alternative.

In fiscal 1969 EDA continued to emphasize its multi-county economic development district program. This program links adjoining rural counties with medium-sized growing cities. These cities—called growth centers—are economically healthy and have the potential to provide jobs and services for residents of the lagging counties in a district.

Displaced farm workers are finding new opportunity in growth centers, and in some cases young people who have been forced to leave their home regions to find jobs elsewhere have been able to return home and find work.

By the end of fiscal 1969, EDA had designated for assistance 74 districts and 135 growth centers. In addition, 48 other districts had been authorized by EDA and were in various stages of organization. Districts receive planning funds from the agency and growth centers qualify for public works and business development loan funds. In the fiscal year, EDA provided $4.5 million in planning funds for 103 districts in 34 States.

Indian Program

About 350,000 Indians live on Federal reservations in the United States. Many of these reservations have unemployment rates reaching 40 percent or more and have median family of incomes of less than $2,000 a year.

For three years EDA has conducted a special program aimed at helping Indian tribes to acquire improved health, educational, social and recreational facilities, as well as to create jobs by attracting private industrial firms to the reservations.

In an effort to unite all available forces in helping the reservations to attain their goals, EDA has worked closely with local, State and Federal agencies and private industry to coordinate economic development activities on the reservations. The inclusion of communities near the reservations in this cooperative effort has helped reduce the traditional isolation of the Indian from the economic and social systems around him.

In fiscal 1969 EDA continued to concentrate its efforts on 15 reservations selected for their high potential for economic growth. These "action list" reservations received $10.2 million of the total $17.3 million approved for reservations under EDA's Indian program in fiscal 1969.

The agency also added a "planning list" of 44 Indian tribes to its select program in fiscal 1969. EDA officials meet with leaders of these reservations to help them establish goals and priorities and develop specific projects to be undertaken over a long-range period. EDA approved $3.3 million for projects on planning list reservations in fiscal 1969.

EDA also assisted Indian tribes during the year by sponsoring and participating in a series of courses, conferences and seminars for their benefit. These included separate training courses for members of action and planning list tribes and a planning seminar for Indian reservation economic development specialists.

During the year industrial exhibits for action and planning list reservations were held in Los Angeles, Chicago, and New York City. About 300 industrialists attended each conference where tribes displayed products manufactured on the reservations and outlined the advantages of locating branch plants in their areas. The National Congress of American Indians staged the exhibits with EDA assistance.

Better Service to the Public

EDA has made available, through the Clearinghouse for Federal Scientific and Technical Information, the EDA technical assistance studies performed since the agency was established.

In another action the agency has expanded its "one-stop" service by establishing a States' Desk to provide a central point of contact with State officials on policies, programs and procedures affecting economic development. Several seminars have been held by EDA with the Governors and other State officials to explain the role of the States in economic development and to discuss ways in which EDA can assist them. A condensed reference publication of this subject is being prepared.

SPECIAL ASSISTANT FOR REGIONAL ECONOMIC COORDINATION

Purpose and Organization of the Regional Program

This new program promotes the economic development of those regions of the United States which lag behind the Nation as a whole. The program is designed as a joint Federal-State venture to solve economic problems which overlap State boundaries.

The program consists of the following elements:

1. The Federal Field Committee for Development Planning in Alaska, established by Presidential Executive Order in 1964;

2. The Appalachian Regional Commission established under the Appalachian Regional Development Act of 1965; and

3. Regional Action Planning Commissions established under Title V of the Public Works and Economic Development Act of 1965. To date, Regional Commissions have been formed for the Ozarks, Upper Great Lakes, Four Corners, New England, and Coastal Plains Regions. However, the Public Works and Economic Development Act does not limit the number of Commission areas which may be designated by the Secretary of Commerce; additional regions may, therefore, be designated in the future.

All of the Regional Commissions have both planning and project activities, while the Federal Field Committee for Alaska is limited to planning only. In conjunction with the Governors of the 34 States involved in the regional enterprise, plans are being evolved for the economic up-grading of these areas. Regional plans in turn, are tied into newly developed state investment plans, so that on-going and proposed Federal, State, and local programs can be better integrated and focused to promote economic development.

At the project level, funds available to the Commissions vary widely with the Appalachian Commission receiving substantial program money and the Title V Commissions relatively limited funds. In both cases, however, the Commissions are authorized to invest Federal funds in projects judged by the respective Commissions to be of key importance in regional development. To date, the Title V Commissions have been limited, other than in demonstration projects, to supplementing other Federally funded projects. The Appalachian Commission, by contrast, has been able both to supplement Federal programs as well as to finance directly specific programs related to Appalachian economic development.

Details on the accomplishments of the Regional Commissions are published in the Commissions' respective annual reports.

Role of the Department of Commerce

The Secretary of Commerce has been assigned the responsibility of providing continuing liaison between the regional organizations and the Federal Government, of providing policy guidance and direction to the Federal members of the regional organizations, and of obtaining coordinated Federal review of regional plans and recommendations submitted by the Commissions and the Field Committee. To carry out his responsibilities, in June 1968 the Secretary established in the Department the Office of the Special Assistant for Regional Economic Coordination. Two months later in October 1968 the Secretary also called the initial meeting of the Federal Advisory Council on Regional Economic Development. This is a cabinet-level committee of Federal agencies concerned with economic development. The Council is designed to assist the Secretary in his review of the regional economic development plans and to insure that the various on-going Federal economic programs are effectively coordinated with long-range plans of the regional organizations. During FY 1969 the Federal Advisory Council met three times and established procedures for coordinating with the Commissions both on a regional and national level. Thus, on a regional level the agencies and the Federal members of the regional organizations have agreed to form regional Federal field committees. On the national level procedures have been set up for the Federal agencies to review the new regional plans, all of which will be submitted before the end of Calendar Year 1969.

In addition to assisting the formation of the Federal Advisory Council, the Office of the Special Assistant has performed evaluations of the Title V Commissions as well as an evaluation of the Federal Field Committee for Development Planning in Alaska. Plans for the coming year include the first in-depth review of the Appalachian Regional Commission program.

Since the regional program is still in the experimental stage, the Secretary of Commerce is encouraging diverse approaches by the various regional organizations. It is hoped that the experience gained through different approaches, whether these be programmatic or organizational in nature, will yield valuable information to the Secretary in fulfilling his obligation to recommend future directions and forms for the program.

ECONOMIC DEVELOPMENT ASSISTANCE

Summary of Employment and Financing—1965 to 1969

	End of year employment					Obligations (in thousands)				
	1965	1966	1967	1968	1969	1965	1966	1967	1968	1969
General funds:										
Economic Development Administration:										
Grants for local development districts and for research and demonstration[1]	1	1	6	....	....	$1	$1,630	$1,708	.....	.....
Supplemental grants in aid[1]	1	20	17	....	....	.....	16,114	40,618	.....	.....
Appalachian development highway system[2]	...	...	....	....	....	.....	.....	68,158	.....	.....
Development facilities grants	...	313	352	....	....	.....	192,772	169,665	.....	.....
Technical and community assistance	...	377	509	....	....	.....	16,172	24,766	.....	.....
Economic development centers assistance	...	...	22	....	....	.....	.....	9,708	.....	.....
Economic development	...	95	68	....	....	.....	91,532	82,374	.....	.....
Regional economic planning	...	71	64	....	....	.....	1,543	5,316	.....	.....
Development facilities	...	...	....	....	....	.....	.....	.....	174,981	179,734
Industrial development loans and guarantees	...	...	....	....	....	.....	.....	.....	54,791	49,989
Planning, technical assistance, and research	...	...	....	33	25	.....	.....	.....	25,512	24,475
Operations and administration	...	...	....	1,049	1,007	.....	.....	.....	18,919	19,505
Total, Economic Development Administration	2	877	1,038	1,082	1,032	1	319,763	402,313	274,203	273,703
Area Redevelopment Administration:										
Operations	372	...	....	....	....	13,146	.....	.....	.....	.....
Area redevelopment fund	...	...	....	....	....	57,791	.....	.....	.....	.....
Total, Area Redevelopment Administration	372	...	....	....	....	70,937	.....	.....	.....	.....
Total, General funds	374	877	1,038	1,082	1,032	70,938	319,763	402,313	274,203	273,703
Total, Other funds[3]	...	...	....	....	2	82	184	2,878	10,033	12,665
Grand total, All funds	374	877	1,038	1,082	1,034	71,020	319,947	405,191	284,236	286,368

[1] Separate Office of Appalachian Assistance in 1965.
[2] Funds appropriated to Bureau of Public Roads in 1965 and 1966.
[3] Other funds include public enterprise funds, intra-governmental funds and trust funds. Included is employment, but not funds, for allocation accounts carried in the budget schedules of other agencies. Amounts for advances and reimbursements include reimbursements between Commerce appropriation accounts as follows: 1965—$82,000; 1966—$13,000; 1967—$1,988,000; 1968—$40,000; 1969—$241,000.

ECONOMIC DEVELOPMENT ADMINISTRATION

Summary of EDA Approved Projects by State, by Program

As of June 30, 1969

(Amounts in thousands)

States	Public Works		Business Development			Technical Asistance		Planning Grants		State Total	
	Projects	Amount	Projects	Loans	Working capital	Projects	Amount	Projects	Amount	Projects	Amount
Alabama	39	$13,314	7	$10,522	$430	9	$266	2	$90	57	$24,622
Alaska	27	15,668	3	228	225	8	871	2	152	40	17,144
Arizona	33	12,709	5	3,675	....	10	682	2	130	50	17,196
Arkansas	77	31,895	3	733	630	14	330	9	1,113	103	34,701
California	67	71,372	14	10,691	144	60	4,090	3	153	144	86,450
Colorado	12	1,715	....	....	....	4	154	3	190	19	2,059
Connecticut	4	2,257	1	1,800	....	....	....	1	28	6	4,085
Delaware	2	429	....	....	....	....	....	....	....	2	429
Florida	4	3,114	8	2,101	675	15	478	1	88	28	6,456
Georgia	52	28,948	9	17,269	....	16	1,467	13	1,520	90	49,204
Hawaii	2	764	1	66	....	2	25	1	79	6	934
Idaho	16	1,355	3	1,155	....	....	....	1	87	20	2,597
Illinois	36	31,980	4	5,422	....	12	1,173	4	345	56	38,920
Indiana	7	5,772	4	577	180	8	288	1	71	20	6,888
Iowa	1	80	....	....	....	1	19	....	....	2	99
Kansas	4	878	....	....	....	....	....	1	162	5	1,040
Kentucky	120	65,089	15	6,292	1,058	21	1,005	5	332	161	73,776
Louisiana	24	18,800	3	1,129	....	13	476	6	534	46	20.939
Maine	16	4,004	13	12,161	4,410	20	445	5	340	54	21,360
Maryland	3	2,822	4	1,434	180	7	534	1	22	15	4,992
Massachusetts	13	14,396	4	1,157	....	24	1,554	4	155	45	17,262
Michigan	62	29,867	1	1,892	....	16	955	8	825	87	33,539
Minnesota	63	16,122	18	4,111	900	40	646	3	262	124	22,041
Mississippi	98	27,454	10	8,134	165	12	574	10	818	130	37,145
Missouri	41	10,925	1	390	....	8	459	5	403	55	12,177
Montana	20	7,461	3	1,528	....	12	268	7	633	42	9,890
Nebraska	7	664	....	....	....	5	126	....	....	12	790
Nevada	6	946	1	298	....	2	43	1	45	10	1,332
New Hampshire	11	4,838	3	1,300	270	5	106	....	....	19	6,514
New Jersey	6	14,070	6	8,157	360	13	663	....	....	25	23,250
New Mexico	41	14,662	10	2,181	999	11	594	2	167	64	18,603
New York	28	11,934	13	10,696	7,695	33	2,058	7	502	81	32,885
North Carolina	42	27,502	8	5,282	68	6	801	5	303	61	33,956
North Dakota	8	2,380	....	....	....	3	47	1	196	12	2,623
Ohio	37	20,961	4	1,946	....	24	2,568	3	146	68	25,621
Oklahoma	62	22,962	9	2,524	315	14	802	7	946	92	27,549
Oregon	13	10,791	....	....	....	5	138	....	....	18	10,929
Pennsylvania	21	19,781	6	3,899	....	26	2,928	5	398	58	27,006
Rhode Island	10	13,016	....	....	....	5	306	....	....	15	13,322
South Carolina	28	8,971	4	3,195	90	4	190	4	264	40	12,710
South Dakota	17	2,078	....	....	....	5	55	5	218	27	2,351
Tennessee	71	34,174	13	14,243	1,215	12	781	4	419	100	50,832
Texas	67	33,435	10	5,094	....	30	1,007	7	725	114	40,261
Utah	23	9,099	....	....	....	2	78	3	129	28	9,306
Vermont	4	2,409	....	....	....	2	16	1	50	7	2,475
Virginia	14	6,041	....	....	....	9	285	3	279	26	6,605
Washington	36	18,757	8	14,543	495	8	595	1	31	53	34,421
West Virginia	74	43,427	11	3,834	761	20	523	3	265	108	48,810
Wisconsin	25	6,061	2	2,210	....	10	836	2	75	39	9,182
Wyoming	7	571	....	....	....	2	43	....	....	9	614
Guam	1	68	....	....	....	....	....	....	....	1	68
Puerto Rico	39	23,634	9	3,153	....	11	740	2	271	61	27,798
American Samoa	....	....	2	260	135	2	110	....	....	4	505
Virgin Islands	....	....	....	....	....	....	....	1	32	1	32
U.S. General	....	....	....	....	....	57	7,339	3	782	60	8,121
D. C.	1	1,441	....	....	....	....	....	....	....	1	1,441
Total	1,542	$773,863	253	$175,282	$21,400	658	$40,537	168	$14,775	[1]2,909	[1]$1,053,145

[1] Includes $27,288 for 288 research projects.

PROMOTION OF INDUSTRY AND COMMERCE

INTRODUCTION

The Assistant Secretary of Commerce for Domestic and International Business serves as the principal adviser to the Secretary on all domestic and international aspects of the Department's responsibilities concerning industry, trade, investment, export control, defense production and industrial preparedness of domestic industry, and related economic matters. Included are responsibilities for United States participation in international trade fairs and expositions held in the United States and abroad, coordination of the Department's domestic and international business activities with other Government agencies, and coordination of the Department's overseas activities.

The Assistant Secretary for Domestic and International Business exercises policy and direction and supervision over the Business and Defense Services Administration, the Bureau of International Commerce, the Office of Field Services, and the Office of Foreign Commercial Services.

The United States Travel Service, reporting directly to the Secretary, develops, plans, and carries out a program to stimulate and encourage travel to the United States by residents of foreign countries.

HIGHLIGHTS

- A total of 2,461 exhibitors, including 1,173 small businesses, participated in 66 U.S. Commercial Trade Fairs and Trade Center shows held in Europe, Latin America, and the Near and Far East.
- Thirty BIC Trade Missions visited 53 foreign countries.
- BDSA provided technical data and assistance to about 20,000 business and Government visitors, answered 25,000 written, and 100,000 telephone inquiries.
- BIC negotiated contracts for the first five export market development projects of the Joint Export Association (JEA) programs.
- More than 39,000 businessmen attended 1,337 foreign trade seminars under the auspices of the Office of Field Services (OFS), and 22,463 visits were made to business firms to promote interest in export markets.
- The President's "E" award went to 60 companies for outstanding contributions to the export expansion program. Ten of these awards were presented by President Nixon in a World Trade Week ceremony at the White House on May 19, 1969.
- The U.S. Travel Service reported an increase in business and pleasure visitors from overseas of 4.7% over FY 1968.
- A USA Tour Manual, listing more than 200 VISIT USA tour packages, was prepared and sent to U.S. Travel Service overseas offices for distribution to local travel agents.

OFFICE OF THE ASSISTANT SECRETARY OF COMMERCE FOR DOMESTIC AND INTERNATIONAL BUSINESS

During the year, the Office of the Assistant Secretary for Domestic and International Business (DIB) assisted in activating the Cabinet Committee on Export Expansion to provide the medium for focusing government-wide

policy attention on achieving a major improvement in the U.S. trade surplus through expansion of exports. The Office provided leadership to several work groups concerned with improved credit for export financing, tax incentives, and simplified documentation in export transportation. Extensive consultations with U.S. industry were completed to stimulate trade expansion and to enlist private sector support of the first national export goal in the Nation's history—$50 billion by 1973. Further, support was extended to the initiation of a program by the Export-Import Bank to establish new credit facilities for trade expansion and to provide Export-Import Bank representation at major Commerce trade events overseas. The Office participated in the development of Administration positions on all trade policy matters including tariffs, East-West trade, and textiles. It carried the primary responsibility for the Administration in seeking extension of the Export Control Act.

On the domestic scene, the Office participated in the Government-industry partnership for the hiring of the hard-core unemployed, the disadvantaged and the youth by assisting in the expansion of the National Alliance of Businessmen (NAB) endeavors from 50 cities across the nation and in the consolidation of "Plans for Progress" into the NAB program. It assisted in initiating the Department's program for the encouragement of the formation of additional minority business establishments and firms; collaborated with the Department of Labor in the development of proposed legislative improvements in the areas of pension and welfare plan protection and fiduciary responsibility, occupational health and safety, and unemployment insurance; worked closely with the Department of Labor in planning the implementation of the National Computer Job Bank Program; continued to work with the household appliance industry to improve product performance, service and consumer education on a voluntary basis; participated with the Department of Housing and Urban Development and other agencies in the initiation of the Voluntary Action Program; undertook a study, in cooperation with the Office of the President's Special Assistant for Consumer Affairs, concerning the relative merits and demerits, and potential impact of unit pricing requirements for consumer goods; and consulted with industry delegations and industry advisory committees to strengthen rapport with national and local business communities and to increase Commerce understanding and appreciation of industry-oriented problems.

Early in calendar 1969, responsibilities were adjusted among the Deputy Assistant Secretary positions to strengthen DIB program direction and representation. The most significant aspects were the merger of international trade policy and financial policy under one Deputy for International Trade Policy and assignment of a coordinating responsibility for the activities of BDSA and BIC to the Deputy for Business Development.

The Office participated actively in the review of the Oil Import Program being conducted by the Cabinet Task Force on Oil Import Control established by the President in February 1969.

The Deputy Assistant Secretary for Resources chairs the Interagency Textile Administrative Committee which administers the textile import program. In accordance with decisions of the President, efforts were launched in the early part of calendar year 1969 to negotiate international agreements on wool and man-made fiber textiles and apparel similar to those in effect since 1961 on cotton textiles. New cotton textile bilateral agreements with exporting countries were put into effect and several were revised as the need arose. Preparations were begun for considering the extension of the Long-Term Cotton Textile Arrangement which is presently scheduled to expire September 30, 1970.

The Deputy Assistant Secretary for Resources also is the Commerce member of the three-man Oil Import Appeals Board, which hears appeals based on exceptional hardship, error, or special circumstances with regard to oil import quota allocations made by the Interior Department. Seventy-seven cases were decided by the Board during fiscal year 1969, 35 more than during the preceding year.

Foreign-Trade Zones

The Office assists the Secretary of Commerce in the administration of foreign trade zones. There are ten foreign-trade zone sites in operation—general purpose zones in New York, New Orleans, San Francisco, Seattle, Toledo, Honolulu, and Mayaguez (Puerto Rico), and subzones for manufacturing in San Francisco, Penuelas (Puerto Rico), and New Orleans. Authority has been granted by the Foreign-Trade Zones Board for general-purpose foreign-trade zones in Bay County, Michigan and Bayonne, New Jersey, and for subzones in Bay County, Michigan and Taft, Louisiana. Applications for the establishment of the following new zone sites were pending before the Foreign-Trade Zones Board at the close of the fiscal year: a general purpose zone and a subzone in Maine; a general purpose zone and a subzone at Savannah, Georgia; and a subzone in Hawaii.

Merchandise in the zones at the beginning of fiscal 1969 consisted of 109,921 short tons, valued at $52,479,731. Merchandise received during the year consisted of 520,786 short tons, valued at $109,369,212; 362,239 short tons, valued at $96,104,756 was forwarded.

Office of Administration

This office is the administrative staff arm to the Assistant Secretary, carrying out the full range of administrative management services for the bureaus and offices under his direction. It also conducts studies and

coordinates U.S. Government participation in approved international expositions to be held in the United States. Significant accomplishments included overseeing the construction and operation of the U.S. exhibit at HemisFair '68, San Antonio, Texas. By the close of the exposition, October 6, over 2.3 million visitors had toured the Confluence Theatre and exhibits building of the U.S. pavilion. Most of DIB's personnel programs and activities are now operating under the Department's Uniform Automated Data Processing System for Personnel Management, and a revised and strengthened merit promotion plan was installed. Sustained staff efforts produced selected indicators for DIB program identification and measurement; and initial steps were taken to develop a program-based statistical reporting system to highlight trends and for use in five year projections.

Office of Publication and Information

The Office of Publications and Information (OP&I) continued to emphasize promotion to bring the Department's business-oriented publications and periodicals to a wider audience. These efforts led to an increase of more than 30 percent over the previous year in sales of publications reporting industry-wide data on the manufacturing sector of the U.S. economy, and sale of more than 24,000 copies of the 1969 *"U.S. INDUSTRIAL OUTLOOK"* in the second annual increase of 3,000 above previous sales levels.

BUSINESS AND DEFENSE SERVICES ADMINISTRATION

Functions

The primary functions of the Business and Defense Services Administration (BDSA) are to promote and develop the growth of industry and commerce of the United States and to prepare and execute plans for industrial mobilization readiness.

BDSA provides the Federal Government with information on industries and commodities and administers programs to provide services to manufacturing, construction, distribution, and service industries.

Its industry and commodity specialists contact and report on more than 400 manufacturing, trade, and service industries, concentrating on production, marketing, technological changes, and the outlook for each.

Industrial Analysis

BDSA provides Government agencies and business with analyses and data on business production, sales, employment, profits, and distribution planning. It supplies essential and timely information on market trends, technological developments, opportunities and problems.

As part of its special information services, BDSA during the year provided data or technical assistance to 20,000 business and Government visitors; answered 25,000 written, and 100,000 telephone inquiries.

The 1969 edition of the *U.S. Industrial Outlook* included detailed analyses of recent trends in, and evaluations of prospects for, 118 manufacturing and non-manufacturing industries. Newly covered were such large and rapidly growing fields as advertising, auto repair, and medical and health services. Over 24,000 copies of the 1969 *Outlook* were sold, more than 3,000 above the previous year.

BDSA also publishes periodicals covering chemicals, construction; containers and packaging; copper; printing and publishing, and pulp, paper, and board. The periodicals provide basic data on trends and also analyses of recent developments in key areas of the economy. A major monthly is the *Marketing Information Guide*, an annotated bibliography of 2,400 books and articles about marketing that were published during the year.

To provide basic industrial data in convenient sources, BDSA continued publication of *Industry Profiles* and *Growth in Shipments* and issued three new series: *Industry Trends, Patterns of Industrial Growth*, and *Facts About Wholesaling*. The eight-volume *Industry Trends* series contains historical data on size, growth, geographic distribution, imports, and exports for major sectors of the manufacturing economy. *Patterns of Industrial Growth* is a series of short publications showing historical data on shipments for individual products. *Facts About Wholesaling* is a series of pamphlets which provide data for evaluating the direction and growth of individual wholesaling activities.

Growth Pacesetters of American Industry highlights the factors that influenced past growth in each of 55 industries that contributed significantly to industrial growth during the 1958-1968 period. The volume, which also assesses prospects for future growth in these industries, sold nearly 12,000 copies.

To further strengthen communications between the Government, business, and academic communities on marketing matters, the second full meeting of the National Marketing Advisory Committee (NMAC) was held. Committee subgroups have begun to do economic

research on our marketing system for policy formulation; to define consumer problems and propose solutions; to develop proposals for cooperative programs to improve commercial services to low-income areas; and to develop a program to stimulate academic research on business. As individuals, members of NMAC have been influential in obtaining support for Department programs.

During FY 1969, major studies were performed by BDSA on the impact of increased metric usage on U.S. industry and foreign trade (for the National Bureau of Standards); on opportunities for minority entrepreneurs in selected industries (for the Small Business Administration), and on the economic impact of air pollution controls in the grey iron foundry industry (for the Department of Health, Education and Welfare).

Domestic Business

BDSA's efforts included analyses of the potential national economic impact of labor disputes and the cost implications of new labor contracts for longshoremen, seamen, and the steel, oil, and coal industries. Studies were made on the economic impact of price adjustments in various industries such as nonferrous metals, lumber, plywood, automobiles, and certain major chemicals. Studies also were begun or completed on industries significantly affected by imports, including textiles, apparel, footwear, and stainless steel flatware. In addition, BDSA contributed to the development of U.S. commercial policy by analyzing tariff questions and commodity problems. BDSA analyzed and made recommendations on almost 500 legislative proposals of importance to American industry and commerce.

BDSA continued to provide assistance to the Interagency Textile Administrative Committee (ITAC) under the program to assist the textile industry. Statistical and economic analyses were provided for the official trade delegations to Europe and the Far East headed by the Secretary.

Technical Business Services

In a continuing program to promote progressive business policies, BDSA provided staff support to the Youth Opportunity Program for the summer of 1969. BDSA participated with other agencies and White House staff in the expansion of the National Alliance of Businessmen–JOBS program and in the development of a computerized job bank program. The Agency's Trade Association office conducts several promotional campaigns among industry organizations in support of various public service programs, including See America First, Keep America Beautiful, and Hire the Handicapped.

In the field of business-consumer relations, BDSA provided staff for the Task Force on Appliance Warranties and Service, developed a voluntary industry program, and prepared the Department's report to the President. The voluntary industry program for improving applicance service is now underway.

During FY 1969, BDSA continued its Pollution Abatement and Conservation of Economic Resources (PACER) program to measure the economic effects of environmental controls on specific industries. Studies covered secondary non-ferrous smelters, grey iron foundries, and the auto wrecking/dismantling industry. At the end of FY 1969, BDSA was undertaking a pilot study for HEW's Bureau of Solid Waste Management to determine the volume of solid waste generated by auto wrecking and the resulting burden on local solid waste disposal systems.

BDSA established a program for measuring, evaluating, and projecting industrial water demands and related requirements. In advising the Government on water requirements for industrial growth, BDSA contributed to the first national assessment of water resources. It also took an active part in coordinated Federal and State policy and program planning through its memberships in the Water Resources Council, in major Federal/State river basin commissions established under the Water Resources Planning Act of 1965, and in several interagency river basin committees.

BDSA contributed to the Department's "*U.S. Foreign Trade: A Five-Year Outlook with Recommendations for Action,*" and provided continuing assistance to the export target, trade fairs and exhibits, and export market identification programs. Support and guidance were provided to the Interagency Committee on Coal Exports to enhance sales by reducing costs and improving industry services.

Fulfilling the Secretary's responsibility under the Automotive Products Act of 1965, BDSA made 160 determinations of bona fide motor-vehicle manufacturers qualified to import automotive parts and equipment from Canada free of duty. Analyses were made in preparation for the Joint U.S.-Canadian Committee on Trade and Economic Affairs June meeting and for the meetings with the Canadian Government on the Automotive Agreement scheduled for the fall of 1969.

Actions were initiated to assist U.S. exporters where foreign governments placed restrictions on imports (textiles, apparel, electronics). Tariff preference requests lists from less-developed countries were reviewed to protect U.S. commercial interests during future international negotiations. BDSA continued to promote domestic and international standards compatible with U.S. economic and social goals through liaison with domestic and international standards organizations.

During FY 1969, BDSA processed and distributed approximately 8,000 private foreign trade opportunities to U.S. businessmen. In addition about 15,000 trade and investment opportunities offered by foreign governments were distributed, including major NATO and SHAPE procurements, large engineering projects, and AID and UN projects requiring extensive technical coordination and financing assistance.

Industrial Readiness

The priorities and allocations powers provided by the Defense Production Act of 1950, as amended, were administered by BDSA. During fiscal year 1969, defense requirements were met through the priorities and the allocation procedures specified in the Defense Materials System and through the maintenance of defense set-asides for copper, steel, aluminum, and nickel. BDSA also provided special expediting assistance to defense contractors and suppliers in meeting critical delivery schedules, handling 1,956 cases during the fiscal year.

BDSA continued planning to provide the resource management needed to mobilize and channel materials, goods, and services in support of national security during any national emergency, including attack on the United States. These activities encompass operations of the U.S.-Canadian Joint Emergency Resources Planning Committee as well as the Industrial Planning Committee of the North Atlantic Treaty Organization.

In the stockpile program, BDSA prepared estimates of essential civilian and war-supporting requirements for 76 stockpile materials and revised 52 stockpile specifications and special instructions. Some 49 stockpile disposal program analyses and recommendations were made. In addition, 10 special stockpile studies were provided at the request of, and in collaboration with, Atomic Energy Commission, Department of Defense, and Office of Economic Planning.

BDSA chairs the Industry Evaluation Board (IEB), and has responsibility for identifying products, services, and supporting facilities which are of exceptional importance to industrial mobilization and national survival. Analyses covering 150 essential products or industrial segments were completed during the fiscal year.

BDSA continued to maintain the readiness posture of its National Defense Executive Reserve unit, consisting of 1,607 industry executives, for whom training programs in industrial mobilization were conducted.

BUREAU OF INTERNATIONAL COMMERCE

Functions

The Bureau of International Commerce (BIC) is responsible for promoting the foreign trade of the United States and for assisting U.S. business in its operations abroad.

Under the Export Control Act, the Bureau also controls exports to the extent necessary to further the foreign policy of the United States, to assure that strategic commodities are denied to unfriendly or potentially unfriendly countries, and to prevent excessive exports of short supply commodities. BIC programs advance U.S. foreign trade interests in three principal ways:

First, by helping businessmen become exporters or expand their overseas business by providing information on where, when and how to market.

Second, by seeking to reduce tariffs and other barriers to trade, and by protecting U.S. business interests in working with international organizations considering commercial and economic problems.

Third, by presenting the views of American foreign traders and investors in the councils of Government.

Export Strategy Planning

A number of steps were taken in FY 1969 in BIC's effort to help develop a long-range U.S. export strategy. The Bureau completed a study, *U.S. Foreign Trade, a Five-Year Outlook with Recommendations for Action*. The Interagency Committee on Export Expansion, chaired by the Secretary of Commerce agreed on an annual export goal of $50 billion by 1973 and established working groups to examine what Government measures in financing, taxes and transportation could be effected to support progress toward that goal. Work also moved ahead to identify those American industries which can best increase their exports in the next five years; to define their export potential, and then to enlist their cooperation in a joint business-Government effort to achieve that potential. Eight industries, which accounted for $5.5 billion of U.S. exports in 1968, have been tentatively selected for development of export targets, with four to eight more to be identified by the end of the calendar year.

Joint Export Associations

During FY 1969, BIC negotiated contracts for the first five export market development projects of the Joint Export Association (JEA) Program. Of the 78 participating companies, 43 companies, or 55 percent, are small firms. The Department will reimburse up to 50 percent of the cost of these contracts for such purposes as overseas market research, advertising, publicity, dis-

tribution of technical data and samples, participation in trade exhibitions, travel for international trade promotion purposes, and training of sales and service personnel. Approximately $34 million in new U.S. export sales is expected to result from these projects.

Export Market Identification Activities

During the early part of FY 1969, BIC developed plans for pinpointing specific export opportunities by product and country through a new Export Market Identification (EMI) program. Export sales opportunities are disseminated to prospective U.S. exporters in the form of regularly issued product/market bulletins entitled "World Markets for U.S. Exports." Also, Global Marketing Plans are prepared, which contain intensive marketing data on 30 to 40 countries for a particular U.S. industry or industry segment, and list those U.S. products that represent maximum potential U.S. export sales growth over a 2 to 5 year period. These export opportunities are cast into a 2 to 5 year schedule of highly selected overseas trade promotion events for consideration and active participation by U.S. industry.

Export Sales Campaigns

BIC is developing nationwide campaigns designed to motivate U.S. industry to capitalize on the export sales opportunities identified by EMI. Efforts will be coordinated with Department Field Office, and the assistance of Regional Export Expansion Council members, local bankers, trade associations. Prominent representatives of industry will be solicited through a series of campaigns to be implemented on a regional basis throughout the United States.

Commercial Exhibitions and Trade Centers

A total of 2,461 exhibitors (including 1,173 small businesses) participated in 66 U.S. Commercial Trade Fairs and Trade Center shows. BIC mounted 20 Commercial Trade Fairs in Europe, Latin America, the Near East and Far East. Forty-six promotions were staged in the six existing U.S. Trade Centers in Bangkok, London, Frankfurt, Milan, Stockholm and Tokyo. During these promotions, 244 new agents and distributors were appointed.

Between-show promotions continued to be an important aspect of the U.S. Trade Center program. Presented between regularly scheduled exhibitions in the Trade Centers, they feature the products of one or more U.S. firms. During the year, 133 between-show promotions were staged.

BIC moved forward with plans for the establishment in FY 1970 of two new Trade Centers; completing site selection, lease negotiations and construction/equipping contracts for the Paris and Sydney Trade Centers.

Several Trade Fair presentations were of special interest. BIC staged a solo exhibition in Sao Paulo in October 1968, the Department's first Commercial Trade Fair presentation in Brazil. Off-the-floor sales were $3.3 million and participating exhibitors forecast an additional $11.6 million in sales. The Department also staged its first water purification show in Rome in February 1969. The PURAQUA Exhibition, promoted throughout the Mediterranean basin, featured a top level interagency symposium. The exhibition yield projected sales of $32 million to participating manufacturers. In May 1969, BIC undertook its first Solo Commercial Exhibition in Korea, which resulted in $8 million in floor sales and $15 million in projected sales. The Paris Air Show in June 1969 featured the Apollo Program as its theme. BIC's efforts generated over $27 million in anticipated aerospace sales for the more than 60 participating manufacturers.

Trade Missions

Thirty BIC Trade Missions visited 53 different countries, with 233 American businessmen participating in 22 industry-organized missions, 3 specialized missions, and 1 Government mission. Four missions were combined with Mobile Trade Fairs.

Sample Display Service

The Sample Display Service, operating in Bangkok, Beirut and Nairobi, assists U.S. manufacturers in obtaining agents and distributors in developing markets. During the year, 152 U.S. manufacturers signed up for the service, more than 95 percent new to market. Thirty-two new agency agreements were concluded. Special Sample Display exhibits were also conducted in conjunction with trade missions to Douala, Cameroon and Abidjan, Ivory Coast.

Mobile Trade Fairs

This program provides financial assistance and supporting services to private operators of Mobile Trade Fairs when they use U.S. flag transportation to show and sell U.S. products abroad.

During FY 1969, four Mobile Trade Fairs/Trade Missions operated in 110 different countries, displaying the products of 44 U.S. manufacturers.

America Weeks

America Weeks are retail sales promotions of U.S. consumer goods mounted in cooperation with department stores overseas. Upon the purchase of a specific amount of American goods by the store, BIC supplies promotional support, usually of a type not available through normal commercial channels. Other assistance in

directing the firm toward the selection and purchase of U.S. products also is provided.

Nine BIC-supported America Weeks were staged during the year by department stores in Australia, Spain, Hong Kong, and Japan. These stores purchased over $2 million in merchandise for the promotions.

American International Traders Index

BIC's resources for providing timely information and service to the American International business community continued to increase through use of the fully automated American International Traders Index (AITI), which presently contains detailed information on the commodity and country trading interests of approximately 25,000 American firms. The AITI has become the standard tool for identifying and contacting firms with an interest in overseas exhibits, trade fairs, and trade missions. BIC's Office of International Regional Economics uses the AITI to mail Kennedy Round reports on all foreign country tariff reductions to registrants. The Department's Field Offices use the AITI to disseminate announcements and newsletters pertaining to international trade and to invite firms to regional export seminars and conferences sponsored by the Field Offices.

Adjustment of Trade Complaints

With the cooperation of the Foreign Service, BIC assisted in settling 917 trade disputes between U.S. and foreign firms during fiscal 1969. Eighty percent of the cases were settled to the mutual satisfaction of both parties.

Trade Lists

In 1969, American businessmen purchased 39,140 Trade Lists containing the names and addresses of foreign firms handling specific commodities or supplying specific services to identify and select potential customers, agents, distributors and licensees abroad. Computerized Trade Lists, based on World Trade Directory reports, are available for 91 countries.

Trade Contact Surveys

Trade Contact Surveys are special canvasses of foreign business communities conducted by the Foreign Service at the request of Commerce for the purpose of locating prospective agents, distributors and licensees. During fiscal 1969, 382 surveys were completed. Commerce requests this service only when other services prove unsuccessful in finding a suitable business relationship.

World Trade Directory Reports

World Trade Directory (WTD) reports contain basic commercial information on individual foreign firms. They are used by American businessmen to select international trading partners and to support applications for export credit insurance. During fiscal year 1969, 42,716 WTD reports were sold. More than 125,000 WTD reports are now on microfilm, available for dissemination to business.

Foreign Production and Commercial Reports Service

This service enables American businessmen to obtain selective copies of all unclassified commercial, agricultural and economic reports received by the Department from the Foreign Service. Reports are coded and listed in a monthly automated index which is sent to over 2100 individuals and firms on a regular basis. During fiscal year 1969, 58,633 copies of 3,554 reports were distributed to American businessmen.

Piggyback Program

The Piggyback Program was initiated in December 1965 to encourage cooperative exporting. Companies not equipped to sell abroad arrange with companies already established in overseas markets to sell for them, and their products "ride" to market. During 1969, BIC assisted 58 prospective "riders," increasing its list of such firms to 2,012. BIC added 9 firms and 8 combination export managers to the "carrier" list, raising that total to 1,076. During the year, 16 cooperative exporting arrangements were completed.

Commercial Policy Issues

BIC provided representatives and advisors to U.S. delegations to international organizations such as the General Agreement of Tariffs and Trade (GATT), the Organization for Economic Cooperation and Development (OECD), and the United Nations Conference on Trade and Development (UNCTAD), and helped develop approaches to be taken by embassies in carrying out U.S. policy on foreign trade issues.

The Bureau was active in preparing studies and recommendations for the President on tariff problems arising from changes in the tariffs of various GATT contracting parties or from reports by the Tariff Commission under the escape clause or other provisions of the Trade Expansion Act of 1962. It contributed staff papers and studies to the Executive Branch in preparation of the proposed Trade Act of 1969, and participated in framing the provisions of that legislation. It also undertook studies and participated in drafting recommendations which were reflected or incorporated in the report to the President, entitled "Future U.S. Foreign Trade Policy," by the Special Representative for Trade Negotiations.

BIC continued to provide staff work in the development of Departmental positions on proposed tariff and trade

legislation and on generalized tariff preferences for the developing countries. BIC also did considerable staff work to develop the U.S. position and support the U.S. Delegation in the effort in the OECD to draft a code of guidelines to reduce discrimination in government procurement.

BIC devoted substantial effort to finding ways to improve the U.S. trade balance within the context of a liberal trade policy. For example, it took the lead in developing the background study and the U.S. position in seeking the removal of French and Japanese import restrictions.

Resources Policy

BIC participated in (1) development of policy and formulation of regulations relating to U.S. membership in the International Coffee Agreement; (2) negotiations for an international cocoa agreement; (3) activities of several study groups such as those for cotton, lead, and zinc; (4) the work of such basic international commodity bodies as the UNCTAD Committee on Commodities and the FAO commodity agencies; (5) the intragovernmental committees to implement the 1966 Marine Resources and Engineering Development Act and on the peaceful uses of the ocean floor beyond the limits of national jurisdiction.

Trade Negotiations

A number of U.S. trade agreement partners withdrew tariff concessions on industrial items of interest to the United States, while still others implemented new tariff nomenclatures. BIC played a predominant role in studying the effects of these actions on U.S. trade and in recommending requests for compensatory concessions on alternative U.S. export items, where necessary. BIC also played a leading role in preparing for negotiations with several of the smaller countries in response to their requests to bind to them concessions granted by the United States during the Kennedy Round.

The Bureau had chief responsibility for preparing for an initial review in the General Agreement on Tariffs and Trade of a worldwide inventory of foreign import restrictions as a first step in a multilateral effort to reduce these trade barriers. BIC was represented on the delegations that participated in the review. The Bureau also recommended action to be taken bilaterally with various countries for removal of their non-tariff barriers.

Export Financing

BIC worked with the Export-Import Bank, other Federal agencies, the Foreign Credit Insurance Association (FCIA) and commercial banks to make export credit available more readily and at a lower cost to U.S. businessmen. To this end, BIC continued to participate in interagency working groups, largely under the aegis of the Cabinet Committee on Export Expansion, on such financing problems as creation of an effective export credit discount facility, exemption of export credits from Federal Reserve foreign credit restraint program, and formation of a new private export financing institution. Success in these efforts was reflected in the recent liberalization and expansion of Eximbank and FCIA financing activities. The Bureau also helped to coordinate the use of AID funds in support of the Korean Trade Fair, a successful pilot project.

BIC played a major role in securing the establishment by the Congress in July 1968 of the Export Expansion Facility within the Eximbank. By Executive Order, an interagency Export Expansion Advisory Committee, chaired by the Secretary of Commerce, was established to advise the Bank on the use of this new authority. The Committee met regularly during the past year, and upon its recommendations more than $142 million in exports were supported during FY 1969 through the Facility by Eximbank guarantees or loans or by FCIA insurance. Exports to 16 countries benefitted and a variety of products were financed. Experience to date supports the Bureau's expectation that this new authority will make possible exports which might not otherwise have been realized, and also furthered liberalization of Eximbank and FCIA regular programs.

Business Practices

Activities in this field centered on efforts to assist export expansion and reduce the restrictive effects of unfair trade practices. The Bureau sponsored programs to promote the international competitive position of U.S. firms with respect to certain customs conventions, foreign commercial laws, industrial property rights, commercial arbitration, and international standards.

BIC worked closely with the U.S. Council of the International Chamber of Commerce to implement the customs carnet system provided for in five international conventions which came into force for the United States on March 3, 1969. The carnet system enables salesmen and others to obtain temporary duty-free entry for their samples and professional equipment.

The Bureau made representations on behalf of American firms in more than 100 cases involving foreign copying of U.S. designs and products or other unfair acts and practices. BIC followed developments in the field of international commercial arbitration and supported efforts to restore an active Inter-American Commercial Arbitration Commission. The U.N. Convention on the Recognition and Enforcement of Foreign Arbitral Awards came into force for the United States, and material was prepared describing the rules governing arbitration in the member countries. BIC served on the Advisory Committee on International Standards Pro-

grams of the United States of America Standards Institute and provided guidance on trade aspects of international standards activities.

Transportation Matters

The main concern of BIC in this area was to strengthen representation of shipper, as distinguished from carrier, interests in matters affecting the provision of international transportation services. Activities included BIC participation in a special committee on transportation costs, working under the Cabinet Committee on Export Expansion, to develop programs to improve conditions for exporters in freight rate, transport documentation and related matters. In addition, BIC assisted in preparing the U.S. position for the third session of the UNCTAD shipping Committee and furnished representation on the U.S. delegation to that session.

Agribusiness

Activity centered on the information requirements of the Agribusiness Industry Advisory Committee and on implementing its recommendations. Special studies on agribusiness market shares and compilations of general agribusiness information on specific countries provided the Committee with background material on which to make its evaluations. In implementing the recommendations of the Committee, staff assignments have dealt primarily with the preparation of specialized directories, for which there has been a strong demand.

Country Programming

U.S. trade and investment programs involving the Nations's 55 largest trading partners were drafted and transmitted to Foreign Service posts to guide their activities. These programs promote and expand U.S. exports by identifying U.S. commercial objectives in a given country and by developing those supporting activities that most effectively promote U.S. interests.

Commercial Publications Programs

BIC's publications are directed at American businessmen for the specific purposes of helping them to market products abroad or to establish overseas operations. The *Overseas Business Reports* (OBRs) furnish background and operational information regarding economic data, business systems, markets, trade regulations, investing, licensing, etc., in foreign countries. One hundred OBRs were prepared in fiscal year 1969, including a full range of OBR titles for the leading U.S. trading partners.

The *Foreign Economic Trends* reports are prepared for over 100 countries. They provide a review of current business conditions and an interpretation of the implications of current developments for business in the year ahead.

Other publications include: the new *Country Market Digests*, which itemize the 10 to 15 best sales prospects for American exports in each of the 50 leading foreign country markets; the Country Market Surveys, which are prepared following field study in the country, and provide an in-depth current evaluation of the nature and scope of a country's market; and the *Market Share Reports*.

BIC incorporated a major improvement in the presentation of *Market Share Reports*. The revised commodity reports, which assist U.S. business and Government in identifying potential markets for U.S. products and in analyzing our world trade position, now present information on the eight major foreign countries which compete with the United States in supplying each product. This year's series included data for six years, 1962-67, on imports of 1,127 categories of manufactured goods into the 90 major world markets. Country reports showing the value and U.S. share of imports of manufactured products into 69 major trading countries were also issued. A new series of nine feature articles, based on these data, was prepared for publication analyzing changes in the U.S. competitive position in world markets.

Kennedy Round Follow-up Activities

During FY 1969, BIC continued to make special efforts to publicize the results of the Kennedy Round Tariff negotiations and to help U.S. businessmen take advantage of the many new export opportunities made available through the Kennedy Round Tariff cuts. Several comprehensive articles were published in *International Commerce* throughout the year, and periodic spot advertisements also served as constant reminders to businessmen of the new opportunities for expanding their exports. In addition, a new series of reports on the products covered in the Kennedy Round tariff reductions was published to assist exporters and manufacturers in investigating new export opportunities.

International Investment Development

The "Invest in the U.S.A." program was further strengthened during FY 1969. Domestic promotional activities were expanded to increase U.S. business community awareness of, and interest in, the benefits of joint ventures, licensing, and direct investment in conjunction with foreign investors in the United States. In addition, promotion of this program abroad was given new emphasis through, for example, the publication of an "Invest in the U.S.A." brochure for distribution overseas and the expanded activity of the U.S. Industrial Development Attache located in Paris, France. During FY 1969, specific investment and licensing proposals and requests for information and counseling totaled over 3,100. The increase in the number of specific proposals occurred despite the fact that the

criteria for the acceptability of such proposals was tightened in order to eliminate the dissemination of marginal opportunities.

BIC also provided assistance and guidance to U.S. firms on investments and licensing abroad, particularly in the developing countries, within the scope of the current mandatory investment regulations. In FY 1969, over 2,100 specific investment and licensing proposals and requests for information and counseling were processed.

Simplification of Export Licensing Procedures

Two new procedures were made available to exporters whereby one export license application could be submitted to cover a large number of transactions for which separate applications had previously been required.

(1) The bulk Quota License is used for exports of copper scrap commodities that are under short supply control. It permits an exporter with a record of previous exports of these commodities to apply for a single license to cover his total share of a short supply quota.

(2) The Distribution License is used for exports to foreign distributors or users who meet certain qualifications. The exporter must meet established requirements with respect to exports in previous years.

Exports of Technical Data for a Patent Application

Validated export license requirements for all destinations were removed from exports of technical data contained in applications for foreign patents if the patent application has previously been filed in an "early publication" country and in accordance with U.S. Patent Office regulations.

New Edition of Export Control Regulations

The export control regulations were reissued in June 1969 after a complete editorial review. The title of the volume was changed to *Export Control Regulations* from the previous *Comprehensive Export Schedule*.

Extension of Export Control Act

The Export Control Act of 1949 expired June 30, 1969. The Department requested an extension of the Act without change, but bills proposed by Members of Congress to liberalize controls were still under consideration at the end of the year. The Act was therefore extended temporarily so that all proposals could be studied by Congress before passage of final legislation.

OFFICE OF FIELD SERVICES

Functions

The Office of Field Services (OFS) operates through 42 field offices throughout the United States and Puerto Rico. The Field Offices serve as the local points of contact with American business in executing the Department's domestic and international business field programs. They provide American business with specialized information and assistance concerning foreign and domestic markets, foreign trade leads, export procedures including export control transactions, export financing, domestic distribution problems, government procurement opportunities, new technology available for commercial exploitation, and data on the U.S. economy and the economies of our trading partners.

Field Offices also serve as a channel for distribution of business reports, data and statistical information published by all Bureaus and Offices of the Department, and under agreements with other agencies, inform and counsel business firms about the programs of the Export-Import Bank, Foreign Credit Insurance Association and the Agency for International Development.

Export Expansion

The Field Offices carried out a wide range of promotional activities to encourage and assist businessmen to enter the export field or to expand their exports. During the year, with the help of cooperating chambers of commerce, local trade groups, businessmen and bankers, Field Offices conducted 1,337 foreign trade seminars attended by more than 39,000 persons. Field Office trade specialists made 22,463 visits to business establishments primarily to promote interest in export markets among top management. They also sent 69,300 notices of overseas trade opportunities, developed by U.S. Foreign Service posts and by U.S. Trade Missions, to American manufacturers and exporters on a selective basis. The Field Offices also serviced more than 588,000 foreign trade inquiries.

Under terms of an inter-agency agreement signed in November 1967, the Field Offices continued to work with the regional and area offices of the Small Business Administration to bring their services in the international trade field to the attention of a wider business audience.

Plans were made during the latter part of FY 1969 for a greatly stepped up export promotion program for the Field Offices for FY 1970.

National and Regional Export Expansion Councils

The National Export Expansion Council (NEEC), composed of 74 business, labor and professional leaders, advises the Secretary of Commerce on a wide range of Government and business policies and programs pertinent to the U.S. export expansion effort. Significant actions during 1969 which could trace their genesis to NEEC Action Committee recommendations include (1) creation of the new Export Expansion Facility in the Export-Import Bank, increasing its lending authority for export transactions by $500 million; and (2) adoption of a long range approach to export expansion resulting in establishment of a new 5-year export expansion program.

In November 1968, the National Export Expansion Council, in a plenary meeting, identified the actions which, in its judgment, must be taken to improve the U.S. balance of trade and balance of payments. The Council's recommendations are embodied in a "Report by the National Export Expansion Council" dated December 6, 1968. The report reviews all of the recommendations of the NEEC for the attention of the President and appropriate Government agencies concerned with U.S. foreign trade policy. The Council also has formed new task groups organized along industry lines in the areas of electrical generating equipment and switch gear, commercial aircraft, and engineering services.

The National Council provides leadership to 42 Regional Export Expansion Councils (REECs), which advise and assist the 42 Commerce Field Offices in local trade promotional activities. Many of the 1,500 business and professional leaders making up the membership of the REECs participated during FY 1969 in international trade seminars and workshops organized by the Field Offices and consulted with individual firms experiencing problems in exporting.

During FY 1969 the President's "E" Award for export expansion was given to 60 companies that made outstanding contributions to this country's export drive. Ten of the Awards were presented by President Nixon in a World Trade Week ceremony at the White House on May 19, 1969.

Domestic Trade Activities

Field Office trade specialists answered over 537,000 domestic trade inquiries and provided counselling to businessmen on a wide range of domestic business problems. They conducted 636 domestic trade seminars attended by more than 30,000 persons. Subjects covered included marketing and distribution; economic research, franchising; starting and operating a business; Government-business relationships; Government-procurement procedures and practices; patents; input-output; research and development; dissemination of technical information.

Private industry's increasing involvement in Voluntary Action and socio-economic activities has led to increasing demand for services, assistance and information from the Field Offices. Field Offices assisted the business community in local projects involving economic development, minority entrepreneurship, location of plants in low income areas, business development center projects, JOBS (National Alliance of Businessmen), summer job fairs, and other similar efforts.

Field Offices have worked closely with and furnished local support for the domestic programs of other primary units of the Department, including the Patent Office, Clearinghouse for Federal Scientific and Technical Information of the National Bureau of Standards, Economic Development Administration, Office of Minority Business Enterprise, Bureau of the Census, Office of Business Economics and BDSA. For example, in addition to BDSA commodity, industry and marketing matters, Field Offices assist BDSA in recruitment for and training of the National Defense Executive Reserve throughout the United States and in providing information on the Defense Materials Systems to defense contractors and suppliers. Field Office Directors participate in activities of Federal Executive Boards and Associations.

The Field Offices, as sales agents for the Superintendent of Documents, U.S. Government Printing Office, sold more than $729,000 of business publications to individuals and firms in FY 1969.

Subscriptions to the *Commerce Business Daily* (CBD) reached a record 23,000 in June 1969, making it the largest paid subscription publication of the Department. This OFS publication provides business with daily announcements of proposed military and civilian procurement by Federal agencies, as well as notice of contract awards.

Office of Field Services in cooperation with the Department of Defense, General Services Administration and Small Business Administration, completed a study on ways and means to improve the CBD, which was requested by the Senate Select Committee on Small Business. Implementation of the recommendations in the study will provide CBD subscribers with considerably more time for bidding on procurement items; require listing of many procurement items that are not now being listed on the grounds of urgency, and require listing of items for personal and professional services, where feasible.

OFFICE OF FOREIGN COMMERCIAL SERVICES

Functions

The principal function of the Office of Foreign Commercial Services (OFCS) is to strengthen and extend Commerce representation overseas through the Foreign Service in support of the Export Expansion Program.

Personnel Management

The Department of Commerce shares responsibility with the Department of State in the selection and assignment of economic/commercial officers overseas and in the designation and assignment of Economic Ministers, Counselors, and Section Chiefs who supervise commercial officers and commercial activities abroad. This extension of Commerce influence in the selection of officers to carry out the export expansion and other commercial programs abroad stems from new understandings concluded between the two Departments in January 1967 concerning Economic-Commercial Integration.

Reduction in Overseas Positions

Nearly 18 percent of the positions occupied by Government-employed Americans overseas were abolished during FY 1969, in response to Executive directives to reduce expenditures abroad. The Office of Foreign Commercial Services was successful, however, in securing retention of almost all personnel abroad engaged in supporting Commerce programs and trade expansion activities. Parallel efforts during FY 1969 were successfully undertaken to insure continuing availability of adequate commercial staffing in key foreign markets to carry forward Commerce programs aimed at increasing the U.S. trade surplus.

Training

Foreign Service officers are assigned to Commerce for exposure to and experience in commercial affairs, and Commerce employees are assigned to the Foreign Service as Reserve Officers to fill commercial positions abroad. An allocation of 40 positions has been made for this purpose with discretionary authority for Commerce to expand the program at its expense by up to 25 percent.

During its first year of operation, the DIB Trade Specialist Program provided rotational career assignments for seven Commerce employees in domestic and international business affairs, including Foreign Service posts abroad.

Over 100 foreign national employees in overseas U. S. Missions subscribed to a commercial correspondence course inaugurated by the Department of Commerce.

Communications

A little over 1.5 million communications were received from the Foreign Service and Defense agencies for analysis and dissemination to end-users in the Department. The number of outgoing communications from the Department increased to 164,000.

Performance and Post Evaluations

The Office of Foreign Commercial Services prepared and submitted to the Department of State for consideration by the 1968 Foreign Service Selection Boards annual end-user reports on the performance of over 300 economic/commercial officers abroad whose performance involved Commerce interests.

The Department's representatives again served as voting members on the Selection Boards in 1968. The Department participated fully in briefings of Foreign Service Inspection Teams sent to embassies and consulates abroad, providing information on overall post and officer evaluations. Senior officials participated as deputy examiners in examinations of candidates for the Foreign Service.

UNITED STATES TRAVEL SERVICE

Functions

The United States Travel Service (USTS) was established by the International Travel Act of 1961 to strengthen the domestic and foreign commerce of the United States by promoting business and pleasure travel to this country from abroad. It serves as a catalyst among the diverse elements of the travel industry and government agencies in shaping the policies and operations of the VISIT USA program.

Seven regional offices, located in London, Paris, Frankfurt, Mexico City, Sao Paulo, Sydney, and Tokyo, serve the travel industry in more than 40 countries.

Early in fiscal 1969, USTS began a major realignment of its operations to concentrate on directly serving the travel trade overseas and on reaching the general public through mass-media advertising and special promotion projects.

A Marketing Division provides logistic and planning support to the regional offices, oversees the design and production of sales promotion material and coordinates the advertising program abroad. It also works with air, land and sea carriers and travel agents in planning and executing VISIT USA promotions.

In July 1968, an Office of Public Information was formed from the Media Relations section of the Marketing Division.

A Visitor Services Division works with communities throughout the country to improve services for foreign visitors, selects and distributes travel promotion material produced by State and local tourist bureaus, and collaborates with States and territories, convention and visitor bureaus, hotels and motels, and car rental systems. Its efforts include keeping Americans aware of their role as hosts and assisting communities and the travel industry in adapting their facilities and services to the needs of foreign guests. The Division also works with officials of the United States and foreign governments to reduce barriers to international travel and to lower travel costs.

An Office of Research and Analysis, established in the fall of 1968, works to improve the scope and quality of travel statistics and to develop information on future travel markets and interpret regulatory decisions for USTS offices abroad. Useful statistical information on travel is made available to the various segments of the travel industry.

Increase in Travel to the United States

During Fiscal Year 1969, a total of 1,648,615 business and pleasure visitors came to the United States from overseas, an increase of 4.7 percent over the previous fiscal year, and an increase of 230.6 percent over the 498,652 visitors in FY 1961, when USTS was established.

Factors which may have affected the volume of overseas visitors in FY 1969 include: devaluation of currencies in several countries (The United Kingdom, Denmark, Spain, Ireland), travel restrictions imposed in France during most of the fiscal year, continuation of travel restrictions in the United Kingdom, a slowdown of economic activity in Europe, particularly in West Germany, social unrest in the United States and abroad and the absence of EXPO '67 to attract visitors to the Western Hemisphere.

Marketing

To further encourage business travel to the United States for such purposes as conventions, industry study tours, sales incentive awards, and employee indoctrination, USTS extended its Busivisit program.

A directory, *United States Convention & Exhibitions 1969*, was published listing more than 100 major conventions, exhibitions, trade and industrial shows being held in the United States during 1969 and 1970.

In January 1969, the Secretary of Commerce invited 500 corporation presidents to appoint company representatives to maintain liaison with USTS. More than 60 were appointed by U.S. corporations with overseas affiliates, subsidiaries or branches.

New programs and projects initiated by the Marketing Division include the following:

Two hundred-and-twenty-five VISIT USA Travel Planning Centers were established abroad during FY 1969. These are travel agencies that have expressed interest in promoting the United States as a travel destination and have agreed to display USTS and city and state literature. Reference libraries of promotional and informational material were assembled for the 225 travel agencies selected as Travel Planning Centers.

USA Tour Manual, a listing of more than 200 VISIT USA tour packages, was prepared and some 3,500 were sent to USTS overseas offices for distribution to local travel agents.

Preparation was begun on a *Travel Agents Manual*, a publication aimed at the travel trade which will include comprehensive information on transportation (air, sea, rail, bus and rental car), accommodations, National Parks, sightseeing, documentary requirements and facilitation.

Potential VISIT USA Outlets Abroad, an 86-page listing of travel agents and carriers abroad actively promoting the United States as a travel destination, was published to assist U.S. carriers, tour operators and industry to determine best prospects abroad.

During FY 1969, 985 overseas travel agents participated in Operation 2,000, a USTS effort to bring up to 2,000 travel agents, tour operators and foreign journalists to the United States on familiarization tours during calendar years 1968-69. Under this program, USTS was able to obtain Civil Aeronautics Board waivers for free air transportation. In June the Old West Trail Foundation teamed up with USTS to host a tour for 14 foreign travel writers through the five states that finance the Foundation—North and South Dakota, Nebraska, Montana, and Wyoming.

Regional Offices Abroad

A total of 42 VISIT USA evenings and 72 trade seminars were conducted by USTS offices abroad.

USTS advertisements appeared in 66 newspapers and 86 magazines abroad, including international magazines and trade journals.

USTS offices abroad converted from servicing both the public and the travel trade to concentration on selling VISIT USA and servicing the travel trade. They vacated street level locations and moved to upstairs business offices.

USTS overseas offices made a total of 3,606 sales calls during fiscal 1969 and answered 21,550 telephone requests for travel information about the United States.

Visitor Services

A new program to build and utilize the foreign language resources of U.S. hotels and motels for the benefit of international visitors was undertaken nationally during FY 1969.

USTS presented a walnut plaque bearing the inscription "Welcome, Bienvenido, Bienvenue, Willkommen" to hotels and motels qualifying. Designed for display at hotel and motel registration desks, the plaque reveals to foreign visitors that staff members proficient in these languages will be on duty during all regular business hours. Japanese may be substituted for German.

By the end of June 1969, 12 hotels and motels in five cities displayed the plaque and applications were being received from all parts of the country. Under provisions of a signed agreement, USTS promotes these hotels to the leading sellers of travel abroad.

Americans-at-Home—the program to open more U.S. homes to international visitors—continued actively in fiscal 1969.

USTS in cooperation with the Port of New York Authority and the U.S. Office of Education, Department of Health, Education and Welfare, announced a national pilot program to hire multilingual college girls to greet and assist foreign visitors at New York's John F. Kennedy International Airport. The girls would help foreign visitors clear entry formalities, make transportation connections and find local transportation and accommodations. USTS expects to expand the pilot program to other ports of entry throughout the country.

A campaign to familiarize U.S. law-enforcement officers with reciprocal international driving license agreements and to assist foreign drivers in operating a car in the United States was improved and expanded. A new window sticker reading "International Visitor Seeing the U.S.A.—Kindly Extend all Courtesies" was issued. Some 103,000 kits containing, in addition to the sticker, a road map, a copy of the American Automobile Association's "Motoring in the U.S.A." and the new USTS booklet, "U.S.A. Travel Information," printed in 10 languages, were distributed to USTS offices abroad and to car rental companies.

In August 1968, USTS launched a new national public service advertising and promotion campaign, urging Americans to "Invite and Welcome" foreign visitors to this country. The advertising portion of the campaign is being conducted for USTS by the Advertising Council, Inc., a private, non-profit organization supported by American business and the advertising-communications industry.

The advertisements produced in this campaign asked, "This year why not invite your overseas friends over here," and were used on billboards, radio and television. Ads appearing in the business press were headlined, "This year why not have your overseas meeting over here." Ads appearing in company publications and consumer magazines stressed the "welcome" theme: "Tips on how to become an unforgettable American memory."

A revised 22-minute color and sound 16 mm. film—entitled "Company's Coming" and narrated by television personality Art Linkletter—was distributed to the 42 Department of Commerce field offices for loan to groups interested in increasing overseas visitor travel to their communities.

Public Information

During fiscal 1969 the Office of Public Information assisted in U.S. visits of 49 foreign journalists as follows: Germany—6, The United Kingdom—13, Scotland—1, Ireland—2, Sweden—2, France—14, The Netherlands—2, Australia—3, Japan—5.

Thirty-four travel-inducing feature articles were purchased from American freelance travel writers and distributed to all USTS offices abroad during fiscal 1969.

Research and Analysis

During FY 1969 the newly-formed Office of Research and Analysis worked with private industry and other government agencies to foster a mutual exchange of travel research data.

During the year three new research projects were initiated:

- a market potential index
- an inflight survey of foreign visitors
- a major metropolitan market analysis

A new report on foreign visitor arrivals and departures was developed to replace the existing *Data on Visitors to the U.S.* The *Statistical Summary and Analysis of Foreign Visitor Arrivals, U.S. and non-U.S. Citizen Departures* includes statistics on both foreign arrivals by country of residence and purpose of trip, and on U.S. and non-U.S. citizen departures by country of debarkation, mode of travel, and flag of carrier, both for the month and cumulative to-date activity. In addition to

the statistics, the report includes an analysis of trends and a significant occurrences during the reporting period.

A mathematical research model was developed to identify and rank overseas markets in terms of potential visitors to the United States and potential earnings from such visitors. The index indicates where promotional dollars should be placed in order to receive the greatest returns.

Work was begun on a major port of entry and exit inflight survey, designed in cooperation with airlines and port authorities on a cost-sharing basis. The purpose is to provide, on a continuing basis, information on key characteristics of travelers, primarily focusing on places they visited and dollars spent.

A major metropolitan market analysis program is being developed to extract information from government forms completed by visitors upon entering the United States. Tabulations of the data will show origin of foreign visitors by major foreign metropolitan area, share of market by flag of carrier and of foreign ports, along with appropriate demographic and marketing data.

By acting to improve communications with members of both government and industry, USTS began to obtain an increased awareness of the available information, to exchange existing data more easily, and to conduct joint research projects more frequently.

PROMOTION OF INDUSTRY AND COMMERCE

Summary of Employment and Financing–1965 to 1969

	End of year employment					Obligations (in thousands)				
	1965	1966	1967	1968	1969	1965	1966	1967	1968	1969
General funds:										
Business and Defense Services Administration	376	419	433	430	428	$4,879	$5,312	$5,635	$5,956	$6,308
International Activities:										
Salaries and expenses	598	649	671	688	749	9,726	10,721	11,926	11,740	15,884
Salaries and expenses (special foreign currency programs)	.....	.....	.....	.....	.....	.....	92	63	424	188
Export control	264	269	271	273	256	4,710	4,619	5,084	5,353	5,479
Total, International Activities	862	918	942	961	1,005	14,436	15,432	17,073	17,517	21,551
Office of Field Services	387	385	390	411	399	4,115	4,252	4,429	4,703	5,059
Participation in U. S. Expositions:										
Interama	.....	1	15	13	5	.....	19	157	144	66
HemisFair 1968 Exposition	.....	4	11	95	8	.....	89	2,906	2,920	655
1967 Alaska Centennial	.....	3	11	2	.....	.....	4	4,460	76	.....
Participation in New York World's Fair	30	1	.....	.....	.....	1,559	529	6	.....	.....
Participation in Century 21 Exposition	.....	.....	.....	.....	.....	.....	15	1	.....	.....
Total, Participation in U.S. Expositions	30	9	37	110	13	1,559	656	7,530	3,140	721
Foreign Direct Investment Control	.....	.....	.....	.....	196	.....	.....	.....	.....	3,285
U.S. Travel Service	77	83	82	86	85	2,991	2,975	2,936	2,910	4,441
Total, General funds	1,732	1,814	1,884	1,998	2,126	27,980	28,627	37,603	34,226	41,365
Total, Other funds[1]	313	251	192	187	218	2,569	2,904	3,586	3,396	4,208
Total, All funds	2,045	2,065	2,076	2,185	2,344	30,549	31,531	41,189	37,622	45,573

[1] Other funds include public enterprise funds, intra-governmental funds and trust funds. Included is employment, but not funds, for allocation accounts carried, in the budget schedules of other agencies. Amounts for advances and reimbursements include reimbursements between Commerce appropriation accounts as follows: 1965–$61,000; 1966–$14,000; 1967–$24,000; 1968–$46,000; 1969–$60,000.

BUREAU OF INTERNATIONAL COMMERCE

Table I—SELECTED WORKLOAD DATA

	Fiscal Years		
	1967	1968	1969
INTERNATIONAL COMMERCIAL INFORMATION ACTIVITIES:			
Overseas Business Reports Prepared	76	*93	100
Country Market Digests Prepared	....	....	22
Market Share Reports Issued	1,189	1,178	1,178
Trade Lists Sold	45,104	43,400	39,140
World Trade Directory Reports Sold	44,767	43,093	42,706
Foreign Production and Commercial Reports Disseminated	23,520	45,966	58,663
EXPORT CONTROL ACTIVITIES:			
Export License Applications Received	*165,251	*139,648	145,369
Special Commodity Studies Initiated	431	450	838
Investigations Opened	330	308	242
Export Transaction Checks Required	505	755	665

*Revised base.

Table II—TRADE AND INDUSTRIAL EXHIBITIONS

	Exhibitions	Exhibitors	Trade visitors	12-Month sales (000's)	Agency Agreements Established
FY 1967	19	970	202,918	$68,000	428
FY 1968	17	884	263,797	*36,000	302
FY 1969	20	974	108,460	*79,000	338

*Revised base.

Table III—TRADE CENTERS

	Exhibitions	Exhibitors	12-Month sales (000's)	Agency agreements established
FY 1967	43	1,410	$38,675	416
FY 1968	46	1,434	*42,085	369
FY 1969	46	1,487	*78,973	384

*Revised base.

Table IV—TRADE MISSIONS

	Missions	Mission members
FY 1967	23	198
FY 1968	32	417
FY 1969	30	233

Table V—JOINT EXPORT ASSOCIATIONS[1]

	Contracts signed	12-Month sales (000's)	Distributorships established
FY 1967	.....	.....	.....
FY 1968	.....	.....	.....
FY 1969	5	[2] $4,000	25

[1] Program initiated in FY 1969; first contracts signed in January 1969.
[2] Estimate.

Table VI—AMERICA WEEKS

	Promotions	Dollar Purchases (000's)
FY 1967	10	$2,650
FY 1968	8	1,910
FT 1969	9	2,075

OFFICE OF FIELD SERVICES

(Selected Workload Data)

	Fiscal Year		
	1967	1968	1969
Business inquiries to field offices—visitors, letters, and telephone calls (in 000's)	1,181	1,154	1,126
Out-of-Office visits to business establishments	19,616	21,897	22,463
Domestic Trade Seminars	507	550	636
Export Seminars:			
Total Number	1,148	1,314	1,337
Attendance	36,923	43,323	39,000
Regional Export Expansion Councils:			
Number of REEC's	42	42	42
Membership	1,400	1,413	1,500
Cooperative Offices	650	675	701
Publication Sales (in 000's)	$649	$651	$729
Foreign Trade Leads Disseminated	81,333	65,909	69,425
Commerce Business Daily Subscriptions	22,000	22,500	23,000

OFFICE OF FOREIGN COMMERCIAL SERVICES

(Selected Workload Data)

	Fiscal Years		
	1967	1968	1969
Briefings for Foreign Service Inspectors	92	85	104
Communications Handled:			
Incoming Copies (000's)	1,717	1,473	1,505
Outgoing Copies (000's)	64	77	164
Foreign Service Officers participating in:			
Commerce Consultations	185	170	241
Training Conferences	408	251	260

UNITED STATES TRAVEL SERVICE

Business and Pleasure Visitor Arrivals in the United States
1967 – 1968

Area and country	1967	1968	1969 First six months
Europe:			
Austria	11,598	9,995	4,330
Belgium	18,199	15,528	6,477
Denmark	16,332	15,162	7,389
Finland	6,931	5,211	3,125
France	115,655	77,478	34,390
Germany	118,214	129,225	55,646
Greece	7,372	9,111	3,811
Iceland	2,638	2,114	992
Ireland	14,495	14,461	6,214
Italy	47,126	57,842	25,533
Luxembourg	670	664	295
Netherlands	34,011	36,307	16,662
Norway	9,964	11,227	4,840
Portugal	3,867	4,692	2,530
Spain	14,228	15,830	7,834
Sweden	26,610	29,929	13,885
Switzerland	39,096	28,342	12,708
U. K.	231,492	245,301	94,059
Other Europe	22,038	23,500	10,793
Total	740,536	731,919	311,513
South America:			
Argentina	29,568	32,089	18,353
Bolivia	3,546	3,552	1,824
Brazil	30,427	33,039	13,313
Chile	15,699	17,416	8,294
Colombia	31,722	40,150	20,141
Ecuador	16,565	20,336	9,721
Paraguay	895	954	494
Peru	29,419	21,579	10,127
Uruguay	3,752	4,605	2,497
Venezuela	50,073	50,390	17,951
Other South America	4,898	5,029	2,311
Total	216,564	229,139	105,026

Business and Pleasure Visitor Arrivals in the United States
1967 – 1968

Area and country	1967	1968	1969 First six months
Central America:			
Costa Rica	8,829	9,957	5,274
El Salvador	12,398	14,659	8,527
Guatemala	20,606	23,630	12,414
Honduras	8,010	9,595	5,364
Nicaragua	8,774	8,754	4,127
Panama	12,252	12,818	7,044
Other Central America	2,512	2,750	1,356
Total	73,381	82,163	44,006
West Indies:			
Antigua	NA	NA	5,234
Bahamas	57,194	89,095	38,859
Barbados	NA	NA	1,864
Bermuda	NA	NA	4,083
British Virgin Islands	NA	NA	5,905
Dominican Republic	50,876	53,568	26,215
Haiti	6,974	7,343	3,228
Jamaica	30,326	29,597	13,392
Netherlands Antilles	NA	NA	3,675
Trinidad & Tobago	16,326	16,009	7,102
Other West Indies	75,434	79,184	14,064
Total	237,130	274,796	123,621
Asia:			
Hong Kong	5,555	5,889	3,187
India	7,286	8,795	4,299
Iran	3,744	3,963	1,574
Israel	18,040	18,171	7,707
Japan	69,164	89,096	56,641
Korea	2,545	3,538	1,645
Lebanon	2,537	3,067	1,171
Philippines	13,641	17,018	9,456
Thailand	NA	NA	976
Other Asia	13,120	14,444	5,832
Total	135,632	163,981	92,488
Oceania:			
Australia	38,437	41,430	19,826
New Zealand	15,104	13,775	6,477
Other Oceania	8,114	9,773	5,237
Total	61,665	64,978	31,540
Africa	19,085	16,404	7,261
Other Overseas	1,516	273	52
TOTAL OVERSEAS	1,485,499	1,563,653	715,507
MEXICO	423,764	494,130	442,742
GRAND TOTAL*	1,909,263	2,057,783	1,158,249

*Excludes Canada.

BUSINESS AND DEFENSE SERVICES ADMINISTRATION

(Selected Workload Data)

	Fiscal Years		
	1967	1968	1969
BUSINESS ASSISTANCE:			
Industrial Outlook Reports	78	87	118
Domestic Trade Publications	90	117	202
Legislative Proposals Reviewed	587	380	490
Business Impact Analyses Prepared	36	37	38
Industry Standards Developed	4	0	4
Trade Opportunities Disseminated	*8,600	*6,000	8,000
Foreign Excess Property Permits	*648	*530	755
Business Opportunity/Federal Procurement Conferences:			
Number of Conferences	23	33	25
Attendees	6,000	10,000	9,600
Florence Agreement Cases	169	691	706
DEFENSE PRODUCTION AND INDUSTRIAL READINESS:			
Special Assistance and Authorization Cases Processed	8,189	3,203	1,956
Estimates of Essential Civilian and War-Supporting Stockpile Requirements	76	62	76
Special Supply-Requirements Studies	12	0	10
Special Stockpile Studies	55	109	117
National Defense Executive Reserve:			
Reservists	1,435	1,467	1,607
Training Conferences Held	26	44	46
Industrial Evaluation Studies	175	160	150

*Revised base.

SCIENCE AND TECHNOLOGY

INTRODUCTION

A major objective of the United States Department of Commerce is to contribute to the economic growth and well-being of the Nation through scientific and technological programs related to the needs of business and industry and to the broad social objectives of the Nation. Responsibility for the Department's activities in the fields of science and technology rests with the Assistant Secretary for Science and Technology. He is assisted in this task by the Environmental Science Services Administration, the Patent Office, the National Bureau of Standards, and the Office of State Technical Services.

HIGHLIGHTS OF 1969

- ESSA was the lead agency in the Barbados Oceanographic and Meteorological Experiment (BOMEX), a three-month environmental research project which involved 29 aircraft, 12 vessels, several satellites, and a dozen buoys. Data were gathered from a parcel of atmosphere and ocean covering 90,000 square miles and a vertical column from the sea floor to 100,000 feet.
- A satellite infrared spectrometer, developed by the National Environmental Satellite Center and tested aboard NIMBUS III, produced the first successful atmospheric temperature profiles made from space.
- HURRICANE!, a 27-minute full sound color film produced in cooperation with Aetna Life and Casualty was premiered in June.
- Early detection of the 1969 spring flood threat by Weather Bureau hydrologists helped to reduce damage along the threatened banks of the upper Mississippi, the Red River of the North, and the lower Missouri River.
- In cooperation with the Office of Emergency Preparedness, the Office of Civil Defense, and the American Red Cross, the Weather Bureau launched SKYWARN, an intensive campaign to lower the tornado death toll.
- A five-week series of experiments in snow modification over southeastern Lake Erie region was completed. These were designed to explore whether heavy "lake-effect" snowfall in the shoreline section might be beneficially modified.
- The last three satellites in the present operational series—ESSA 7, 8, 9—were launched. They will be followed in November 1969 by the experimental prototype of a third-generation satellite, to enter service sometime in 1970.
- The class II survey ships RAINIER and FAIRWEATHER were commissioned at the Coast and Geodetic Survey's Pacific Marine Center, in Seattle.
- The computerized ionospheric prediction service of the Institute for Telecommunication Sciences was expanded to accept a greater number of users, and a flexible communications network was developed for dissemination of prediction services and telecommunication forecasts.
- NBS consolidated its major organizational units that gather, analyze, and distribute technical information under an Associate Director for Information Programs.
- NBS entered into agreements with major universities in the Washington area to combine efforts and facilities in certain advanced scientific programs of mutual interest.
- Scientists at NBS have developed a way to stabilize the frequency of light put out by a laser, making it possible to use the device as a length standard.
- NBS has issued several new bio-medical standard reference materials which will serve as the basis for a wide variety of clinical and medical laboratory measurements.
- NBS acted as advisor to the city of East Lansing, Michigan, in applying operations research techniques to determine the optimal numbers and locations for fire stations.

- A record number of patent applications, 96,821, were filed. The total number of pending patent applications was reduced from 189,909 at the end of fiscal 1968 to 183,624, the lowest "backlog" since 1953.
- The new microform patent copy fulfillment system was approximately 95% implemented during the year, resulting in faster and better patent copy service to the public and the office. The system will be fully implemented in fiscal 1970.
- A final draft of a proposed patent cooperation treaty to simplify filing for patents on the same invention in a number of different countries was completed for consideration at a diplomatic conference next spring.
- A number of new procedures were adopted to improve service to users, one of which is the Document Disclosure Program under which the Patent Office will accept and preserve for two years documents which may be used by inventors as evidence of the dates of conception of their inventions.
- Fifty-two matching grants were awarded under the State Technical Services Act to 47 states, District of Columbia, Guam, Puerto Rico, Virgin Islands, and the New England Region.

OFFICE OF THE ASSISTANT SECRETARY FOR SCIENCE AND TECHNOLOGY

The Assistant Secretary represented the Department in a number of activities during the year. He continued as Chairman of the Interdepartmental Committee for Atmospheric Sciences which is concerned with the mutually supporting aspects of the World Weather Program and the U.S. National Atmospheric Sciences Programs. These programs are contributing to the study of two very important problems: air pollution and clear air turbulence.

The Assistant Secretary served as the principal support to the Secretary as the member of the newly created Environmental Quality Council. The Secretary relied on him for staff support in his role as Chairman of the Environmental Quality Council's Committee on Noise. Similarly, the Assistant Secretary represented the Department in many activities of the Water Resources Council which is approaching the evaluation of projects and long-range planning from a total systems viewpoint.

He was designated the Department's member of the newly created Committee on Policy Review of the National Council on Marine Resources and Engineering Development.

He chaired the first of a series of meetings of the National Advisory Committee on Flammable Fabrics.

Legislative Program

The legislative items passed by the Congress in the area of Science and Technology include: the Metric System Study, the Standard Reference Data Act, and Relief legislation. Several items were also under consideration at the close of the fiscal year, including a bill requiring the reporting of weather modification activities to the Secretary of Commerce, and patent reform legislation.

Advice was provided in connection with legislative proposals respecting marine resources and oceanography, weather modification, establishing and expanding the telecommunications policy, research and development role in the Department, community antenna television (CATV), international standards, alien scientists, copyright of computer programs, and protecting Government-owned inventions. Other assistance was provided in the publication for comment of proposed findings of need for flammability standards for carpets and rugs, uniform regulations governing employee patent policy and softwood lumber standards.

Commerce Technical Advisory Board

The Assistant Secretary for Science and Technology is the Chairman of the Commerce Technical Advisory Board (CTAB) which consists of 25 non-governmental leaders in science, education, research, industry and labor. The Board meets monthly to consider questions relating to organization, policy, and technical activities of the agencies and bureaus of the Department; to consider the interaction of economic and business matters with research and development; and provide liaison and advice on scientific and technical matters between industry and Government. In addition to monthly meetings, CTAB charters expert panels chaired by its own members to study specific scientific and technical questions of importance to the Department and nation as a whole. These panels operate independently of CTAB until a report is prepared which is submitted to the Secretary through CTAB.

CTAB Panel Activities

During fiscal 1969 the CTAB Panel on Technical Manpower submitted its report, "Technical Manpower for the U.S. Economy." Five additional panels met regularly and the Venture Capital Panel report was approved by CTAB. Final reports were written by the Housing Technology and International Transfer of Tech-

nology Panels. These reports will be presented to CTAB in early fiscal 1970. The Panel on Noise Abatement and the Panel on Local and State Governments Response to Technological Opportunities and Problems worked toward final reports for fiscal 1970. Efforts to secure implementation of recommendations of previous panel reports on the automobile and air pollution and the electromagnetic spectrum continue in the Department.

Office of Standards Policy

The Office of Standards Review was renamed Office of Standards Policy to reflect more appropriately its broad responsibilities in areas of standards policy. Reporting to the Assistant Secretary for Science and Technology, the Office was created in May 1967 to encourage the formulation of domestic and international standards for the advancement of the commerce of the United States, its economic growth, and consumer protection. Among its more significant achievements this year was its guidance, in the capacity of the secretariat, of the Interagency Committee on Standards Policy which has begun to gather and analyze information on government and private standards activities, policies, programs and relationships as a basis for policy recommendations. This Committee was chartered in March 1968 to facilitate effective participation by the Federal Government in domestic and international standardization activities.

The Office provided analysis and advice to the Assistant Secretary in areas of standards policy, including the Department's responsibilities with respect to the Flammable Fabrics Act, the Fair Packaging and Labeling Act, the procedures for development of voluntary product standards, and softwood lumber standards.

In carrying out its tasks, the Office worked closely with other Government Agencies, trade and professional organizations, consumer organizations, and public and private standards organizations.

Office of Telecommunications

This was the second year of operation for the Office of Telecommunications, which was set up to provide policy assistance to the Assistant Secretary for Science and Technology and act as a focal point for all Commerce telecommunications activities.

A major continuing activity of the Office is to handle all Commerce requirements for radio frequency assignments, and provide a Commerce representative on the Interdepartmental Radio Advisory Committee.

The Office provided staff assistantce to the Under Secretary in his capacity as a member of the President's Task Force on Communications Policy. Since the work of that Task Force was completed, the Office has been concerned with two questions: What technical and economic activities within the Department could or do make significant contributions toward the Government's responsibilities in communications? and what role should Commerce play in developing future Federal communication policy, based on the expertise identified?

ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION

Functions

The Environmental Science Services Administration (ESSA) was created in July 1965 within the U.S. Department of Commerce. Its formation brought together the functions of the Weather Bureau, Coast and Geodetic Survey, and Central Radio Propagation Laboratory. The combination of these functions provided for the first time in a single agency, the talent, equipment, and responsibility needed to conduct a systematic study of the total physical environment.

The mission of ESSA is to ensure the safety and welfare of the public, to further the Nation's agriculture, industry, transportation, and communications, and to assist those Federal departments and agencies that are concerned with the national defense, the exploration of outer space, the management of the Nation's mineral and water resources, the protection of the public health against environmental pollution, and the preservation of the Nation's wilderness and recreation areas.

The headquarters and staff offices of ESSA are located in Rockville, Maryland. Its service and research programs are conducted by five major line components with headquarters at the following locations: the Weather Bureau, Silver Spring, Maryland; the Coast and Geodetic Survey, Rockville, Maryland; the Environmental Data Service, Silver Spring, Maryland; the National Environmental Satellite Center, Suitland, Maryland; and the Research Laboratories, Boulder, Colorado.

Representative Items of Improved Economy and Efficiency

The Coast and Geodetic Survey has achieved a major breakthrough in surveying by modifying the geodimeter—a surveyor's distance-measuring instrument—to use laser light. Conventional geodimeters employ mercury vapor light, but the sun interferes to such an extent that most surveying must be done at night. City lights also interfere when the instruments are used near

metropolitan areas. The laser Geodimeter partially overcomes both of these limitations, and is more accurate when measuring between points more than ten miles apart—thus reducing the number of measurements which a survey team has to acomplish.

The wideband communications system linking the Command Data Acquisition facilities at Fairbanks, Alaska, and Wallops Station, Virginia, with Suitland, Maryland, utilizes terminal equipment which controls the amount of data that can be transmitted. This terminal equipment was originally installed to accommodate data from TIROS Operational Satellite (TOS) spacecraft. During early planning for the new Improved TIROS Operational Satellite (ITOS) spacecraft, plans were made to increase the capability of the terminal equipment to allow for the expected larger volume of data from the ITOS. Further careful review of the planned ITOS orbit and expected data flow has revealed that the present system will be adequate to transmit the ITOS data without modification.

The FY 69 plan for satellite operation included a requirement to refurbish the TOS prototype spacecraft for flight use. Funds had been budgeted for this purpose and a contract had been let. A re-examination of this requirement was undertaken in the light of recent experience with the increased operational life of present ESSA spacecraft in the TOS series. Additional analysis was made of the alternatives available, the risk involved in a premature failure and the impact of such a failure on our program for uninterrupted data acquisition. As a result, revised estimates of operational life were developed and a management decision was made to terminate the contract for the refurbishment of the TOS prototype.

Automation of synoptic and upper air report collectives directly by the computer has been accomplished by ESSA. These collectives are reports of upper air and surface data from selected stations in a 300-station network which are then processed and transmitted to European countries for their use in weather forecasting. In the past, the collectives were selected, processed and edited manually in New York during each of three shifts per day, seven days per week. As a result of this computerized method of processing collectives for further dissemination, a reduction of seven positions has occurred in the Weather Bureau's New York Office. It is planned to install this same improved method in the Miami Office during FY 1970.

Geodetic field computations have been performed by geodetic parties manually with the aid of a desk calculator. Geodetic towers could not be disassembled until the final computations around each station were completed, and the processing of the data could not keep pace with the progress of the field work. In order to increase production in the data computation process, a desk size electronic computer was purchased for each ESSA Triangulation and Traverse mobile field party. Programs for the computer were prepared on magnetic cards to perform all geodetic field computations. The results have been more rapid computations, release of man-hours for other work, reduction in total time at a field station, and an ability to maintain field data current as the project progresses.

Improved Service to the Public

The Environmental Data Service is now furnishing the public, at cost, copies of seismological readings from 25 stations in Canada and from 31 stations in the U.S. This is a new service for scientists, civil engineers, city planners, and others concerned with earth movement or structural strength problems.

National Environmental Satellite Center is furnishing a selected satellite picture which shows the major weather event over the United States each month to *"Weatherwise,"* a bimonthly publication of the American Meteorological Society. They are used extensively in high school science courses, the picture series shows teachers, students, and the general public how the satellite sees weather, and how the data are being interpreted and used by ESSA.

Effective September 15, ESSA Weather Bureau Office, Sacramento, Calif., began issuing a "ventilation index" forecast to inform of atmospheric conditions affecting dispersion of smoke from Fall burning of rice straw and stubble in the Sacramento Valley. Smoke from this burning, if not scheduled for proper atmospheric conditions, reduces visibility to the detriment of airport operations, and causes considerable air pollution in the Valley.

As a new service, the Environmental Data Service has arranged for detailed earthquake data to be made available to the interested public. To be provided in punched card form, this will encourage research and facilitate the use of advanced analysis techniques involving automatic data processing. The cards will be available within 60 days after any month in which an earthquake occurs.

A unique publication entitled *"Climatic Atlas of the United States"* was published by ESSA in late 1968. It contains 271 maps and 15 tables showing the national distribution of averages or extremes of temperature, precipitation, wind, barometric pressure, humidity, sunshine, sky cover, and other climatic features. All maps are drawn on the same base projection to permit easy and accurate comparison and correlation of data.

On March 7, 1970, a total eclipse of the sun will occur along an arc from Mexico up the East Coast of the United States to Newfoundland. If one is making long-range plans to record the event, ESSA has issued a one-page map and table which gives the percentage

frequencies of precipitation and clear versus cloudy skies normally experienced at 19 weather stations along the arc.

A Weather Bureau Fire-Weather Mobile Unit was dispatched to the Santa Barbara channel area in late January. There it furnished up-to-the-minute weather and sea surface forecasts to U.S. Coast Guard and State of California officials fighting the huge oil slick problem.

Environmental Data Service is now calculating "cooling degree day" statistics, which may be used to estimate peak power loads for air conditioning. The statistics for about 300 Weather Bureau stations throughout the Nation are published monthly in *Local Climatological Data.* Cooling degree days are analogous to the more familiar heating degree days used to figure fuel requirements for heating.

World Weather Program

The Office of World Weather Systems within ESSA has provided the focal point within the Federal Government for planning and coordinating the total U.S. national effort in the World Weather Program.

The World Weather Program (WWP) consists of two major parts: (1) the World Weather Watch—an international system for the acquisition, collection, processing and distribution of world-wide operational meteorological data for use by national weather services and (2) the Global Atmospheric Research Program (GARP)—a research effort to increase the accuracy and extend the time range of weather predictions.

Following passage by the U.S. Congress on May 29, 1968, of Senate Concurrent Resolution 67 which expressed the intent of Congress that this nation should support the WWP, the President requested all concerned agencies on July 5, 1968 to cooperate with the Secretary of Commerce in moving forward with the program.

A Federal Plan for the World Weather Program for Fiscal Year 1970 was published in March 1969 which described in detail the proposed participation by the various agencies within the Federal Government during FY 1970.

At the request of the Department of Commerce acting on behalf of the Federal Government, the National Academy of Sciences developed a long range "Plan for U.S. Participation in the Global Atmospheric Research Program."

The major activity of the office during 1969 focused on the Barbados Oceanographic and Meteorological Experiment (BOMEX), a national scientific effort with well defined meteorological and oceanographic objectives. BOMEX was the first cooperative experiment in support of GARP. The principal thrust of the experiment concerned "the joint behavior and interaction of the atmosphere-ocean system in the subtropics and tropical waters." It was a joint effort of the governments of Barbados and the United States. The Department of Commerce was designated as the lead department. Management of BOMEX was assigned to the Office of World Weather Systems, ESSA.

BOMEX was carried out between 1 May and 28 July 1969 in an area of 90,000 square miles east of Barbados. Twelve vessels, 29 aircraft and 1,500 scientists, technicians and crew members of the United States participated. Eleven government agencies, 25 universities and five private corporations contributed funds, personnel and material to the experiment. The project was divided into four periods of from 15 to 19 days each and the most intensive sampling of the atmosphere and ocean ever attempted was performed.

Federal Coordination of Meteorological Activities

The Office of the Federal Coordinator for Meteorological Services and Supporting Research continued to carry out the Department of Commerce's responsibilities for the coordination and planning of Federal meteorological activities as set forth in Bureau of the Budget Circular A-62. The fifth Federal Plan for Meteorological Services and Supporting Research providing a horizontal budget in meteorology was completed and transmitted to the Congress in compliance with Public Law 87-843.

During the year plans were published for weather services in support of the Air Quality Act of 1967, for aviation weather services, for observations in the atmosphere above 100,000 feet, for National Hurricane Operations and for National Severe Local Storms Operations. In addition, plans underway cover weather satellites, clear air turbulence and short-range, small-scale weather phenomena.

Implementation of the Joint ESSA-USAF Computer system at the National Weather Records Center in Asheville, N.C. has resulted in optimum use of the system, running from 660 hrs/month in the first quarter FY-69 to 955 hours in the last quarter.

Federal Coordination of Marine Environmental Prediction Programs

Through the mechanism of the National Council on Marine Resources and Engineering Development an interagency Marine Environment Prediction (MAREP) Staff was formed and co-located with the Office of World Weather Systems, ESSA, with the purpose to coordinate and plan Federal marine environmental prediction programs. The MAREP staff, headed and administratively supported by ESSA, published a Federal Planning Guide for MAREP (January 1969) and provided technical inputs for U.S. participation in the Integrated Global Ocean Station System (IGOSS) of the Intergovernmental Oceanographic Commission (IOC).

WEATHER BUREAU

Functions

The Weather Bureau, through some 400 field facilities, reports the weather of the United States and its possessions and issues forecasts and warnings of weather and flood conditions that affect the nation's safety, welfare, and economy. In addition to facilities in the 50 states, personnel are located at 16 overseas stations and on approximately 20 ships at sea.

Severe Weather and Floods

In 1968 both the actual and official beginning of the hurricane season coincided as Hurricane Abby formed on June 1st. The official hurricane season starts on June 1st and terminates on November 30th. Two hurricanes and one tropical storm developed in June—equalling the record set in 1886 for the greatest number of such storms in June. The remainder of the 1968 hurricane season was relatively quiet, however, with little damage and loss of life.

The winter of 1968-69 was one of the worst on record across the northern states from the Pacific Ocean to the Atlantic Ocean. Record snowfalls were reported in the Pacific Northwest, the northern Plains, and the northeastern states. Some record monthly snowfalls for December were recorded at the following locations:

33.3 inches, Salt Lake City, Utah, greatest in 20 years
26.0 inches, Huron, South Dakota, greatest in 81 years
41.1 inches, Sioux Falls, South Dakota, greatest on record
26.7 inches, Green Bay, Wisconsin, greatest in 81 years
41.1 inches, Marquette, Michigan, greatest in 58 years

Southern Minnesota received more snowfall and had a deeper snow cover (from 20 to 30+ inches) at the end of the month than in any of the 80 Decembers since 1888.

January 1969 winter storms added significantly to the already heavy snow covering the northern states. Record-breaking snows were reported in the Cascades. The 24-inch snow depth at Olympia, Washington, 18 inches at Astoria, Washington, and 34 inches at Eugene, Oregon, were the greatest on record. The 36-inch snowfall at Helena, Montana, was the greatest ever received in any January of record at that location. Duluth, Minnesota, received 47 inches—the greatest for any month since March 1917.

Temperatures were below zero from January 19 to 30, 1969, at Billings, Montana—the longest such period in 75 years. On January 24, Havre, Montana, reported a temperature of 52°F. below zero—the lowest in 53 years.

During February 1969, record-breaking snowfalls occurred in Utah, the northern Plains, and the northeastern states. Two severe winter storms struck the northeastern United States. Snowfall on February 9-10, 1969, ranged from 19 to 25 inches in Nassau, Westchester, and Rockland Counties in New York, 12 to 18 inches in the Hudson Valley and neighboring highlands, and 15 inches in New York City for the greatest snowfall in 8 years. The New York Thruway was closed from New York City to Albany for the first time in history, with travelers snowbound along the entire route. For most of Massachusetts it was the heaviest and most devastating snowstorm in years. The second major February storm to strike the northeast spared New York City but paralyzed New England. Snow fell continuously for about 4½ days at Boston, setting a record for snow depth from a single storm of 26 inches. As much as 45 inches of new snow fell in parts of Maine and New Hampshire during this storm.

During the 1968 calendar year, a total of 660 tornadoes occurred. Efforts to promote public preparedness programs are creating in the minds of the public a more realistic awareness of how to make optimum use of the Weather Bureau's severe local storms warning service. The death toll of 133 in 1968 was very near the annual average.

The Upper Mississippi, Middle Missouri, and Red River of the North river systems experienced damaging floods in FY 1969. Record winter snow packs in the Upper Midwest, accompanied by a late spring thaw, produced record flooding throughout the region during April and May. This flood affected ten states. The flood warning services for this major disaster were unique in that outlooks were issued in February, with detailed crest forecasts in March for the flood peaks in April. These early warnings were helpful in preventing widespread loss of life, and permitted the strengthening of flood control structures and other emergency activities to reduce personal suffering and financial losses.

National Meteorological Center (Suitland, Maryland)

Continued improvements in the numerical prediction (Primitive Equation) model, which has been in operation for 3 years, to account for important atmospheric physical processes that influence the weather have demonstrated their value during the past year. The one-to-two-day surface forecasts issued by the Center and directly based upon the model, have continued to set new records for accuracy during the past year.

The Center started an experiment with a new approach toward making extended 5-day forecasts. This approach would increase the value of 5-day forecasts to users. The experiment utilizes the (Primitive Equation) numerical prediction model and has shown enough promise that

better individual daily forecasts out to 5 days may be possible. If the tests are successful, the more efficient computer processing of the forecasts will make it economically feasible to expand the program from 3 times per week to daily issuances.

Representative Service Improvements

The initial phase of a major reorganization of forecast offices was implemented during FY 1969. The main purpose of this plan is to make the provision of forecasts more responsive to the needs of the users, including improved timeliness in the provision of services. New forecast offices established in FY 1969 were: Columbia, South Carolina; Detroit, Michigan; Pittsburgh, Pennsylvania; Portland, Oregon; and, Oklahoma City, Oklahoma.

Services to commercial shipping and recreational boating on the Great Lakes were improved by decentralizing forecast responsibility—assigning Lakes Superior and Michigan to the Chicago forecast office, Lakes Huron and St. Clair to Detroit, and Lakes Erie and Ontario to Cleveland. In addition, new communication links were established with the Coast Guard and with Canada to speed the interchange of observations and the warnings of impending dangerous conditions on the Lakes.

New weather radars were installed at Waycross, Georgia, and Jackson, Mississippi. The Jackson installation replaces an obsolete radar, while Waycross is a new Weather Bureau Meteorological Observatory established specifically to provide accurate, high quality radar observations and upper air soundings. On January 23, 1969, shortly after its installation, the Jackson radar was used to identify and track an early-season tornado, providing as much as an hour's warning to southern Mississippi residents in the killer's path.

The Weather Bureau cooperated closely with the telephone industry during the past year in the development of new automatic answering telephone weather services. This resulted in abbreviated forecasts being made available by telephone-sponsored services in seven smaller-sized cities.

Under marine weather forecasting, a wave forecasting computer program was implemented in October 1968. The output of this program consists of 24- and 36-hour forecasts of wind, waves, swell, and combined waves for the Atlantic and Pacific Oceans which are furnished on facsimile circuits to forecast offices responsible for marine services. This represents the first time automatic marine surface forecasts have been produced and issued by the Weather Bureau.

In the precipitation forecasting category, an automated system was developed for predicting quantitative precipitation (in eight categories) during the winter season in nine river basins of the Tennessee-Cumberland Valley. The introduction of these automated forecasts has contributed to an overall increase in the level of skill of the Weather Bureau's TVA forecasts.

To improve fire weather forecasting, equations were derived to predict the occurrence and number of thunderstorms over a 12-hour period for most of Alaska. In addition, single station multiple regression equations were derived for predicting the surface dewpoint at 89 cities in the conterminous U.S. from circulation forecasts made by the numerical prediction (Primitive Equation) model. These equations are useful in delineating areas where forest fires are likely to break out, should lightning strike.

In May the Radar Report and Warning Coordination (RAWARC) teletypewriter Network was expanded with the establishment of a new circuit in the western United States. New stations were added in Washington, Oregon, Idaho, and California.

Interagency Cooperation

In cooperation with the National Air Pollution Control Administration (NAPCA) of the Department of Health, Education and Welfare, the Weather Bureau established five Environmental Meteorological Support Units (EMSU) in Chicago, St. Louis, New York City, Philadelphia, and Washington, D. C. The functions of the EMSU are to provide meteorological support to the Air Quality Control Regions and to advise the public of periods of high air pollution potential. The Air Quality Act passed by the Congress in 1967 documented the relationship between weather factors and the disposition of pollutants emitted into the atmosphere. The Units were established under the provisions of the Federal Plan for Meteorological Services, published in August 1968.

The Weather Bureau continued its reimbursable service to the National Aeronautics and Space Administration and the Department of Defense in the space and missile range areas. Notable was the forecasting support to the first four manned Apollo flights, Apollo 7, 8, 9, and 10.

Meteorological programs in the Antarctic, being conducted for the National Science Foundation, were reduced at the end of the austral summer in February 1969 due to a shortage of funds. The remaining staff consisted of three men at the South Pole to continue a full program of synoptic and research observations and a single man at Byrd Station to make surface synoptic and research observations.

As a part of the U.S. support to the World Weather Watch of the World Meteorological Organization, the Weather Bureau is implementing meteorological assistance programs in the following countries: Dominican Republic, Ecuador, Ghana, Honduras, India, Kenya, Nepal, Somalia, Thailand, Trinidad, and Zambia.

The data gathering phase of the Atlantic-Pacific Interoceanic Canal Studies was concluded at the end of FY 69 with the weather stations being closed and personnel reassigned.

The cooperative radar weather program in Alaska, begun in late FY 1968, has proven to be valuable, although curtailed somewhat by the closing of three of the fifteen reporting radar sites. Hydrologists, fire weather forecasters, and aviation forecasters rely heavily upon this radar information in the great data-sparse areas of our largest state. Cooperation in Alaska is with the Alaskan Air Command of the Department of Defense. The observations are taken by Air Force observers at each site and telephoned to the Weather Bureau Forecast Office at Anchorage, where they are composited on a map that is transmitted over regular weather facsimile circuits.

"Planning Guidelines for a Federal Aviation Meteorological Service" received interagency coordination and final approval. This document provides the basis for a five year aviation plan taking into account both military and civilian aviation activities and service problems.

In order to provide more reliable and timely receipt of weather reports from ships at sea and remote land stations, the Weather Bureau is experimenting with two devices for transmission of weather reports via satellite. One such device, the Interrogation Recording and Location Subsystem (IRLS), is currently installed on the Antarctic research vessel ELTANIN. The other, the Meteorological Applications Satellite Transmission Entry and Retrieval (MASTER) System was tested on the USCG vessel ROCKAWAY during the Barbados Meteorological Oceanographic Experiment (BOMEX). The tests have proven that the concept is economically feasible and that such devices will improve the receipt of essential meteorological data at the National Meteorological Center.

Service and Program Adjustments

As part of the Weather Bureau's response to a requirement to reduce employment and expenditures, 9 field offices were closed in FY 1969. These were: Cape Henry, Virginia; Vicksburg, Mississippi; Reading, Pennsylvania; Laredo, Texas; New Haven, Connecticut; Pittsfield, Massachusetts; Texarkana, Arkansas; and Silver City and Raton, New Mexico.

Future Improvements

Plans were completed for the implementation of a Marine Forecast Center at the Anchorage, Alaska office to be staffed by five marine forecast specialists, in accordance with the Federal Plan for a Marine Meteorological Service. This service will serve the rapidly expanding marine activities in Alaskan waters, particularly the weather-sensitive fishing fleets, the shipping into Prudhoe Bay on the Beaufort Sea to support oil activities on the North Slope, and the winter shipping and offshore drilling activities in Cook inlet.

Eleven new weather radars, of the WSR-57 type, are under construction with installations scheduled between early 1970 and late 1971. Most of these will be placed in the Midwest and southern states, extending our radar coverage somewhat as well as replacing a few old and less powerful radars. An additional four WSR-57 radars will be accepted from the Navy this year, three of which will be operated by Weather Bureau personnel at their present sites (Brunswick, Maine; Patuxent Naval Air Station, Maryland; and Memphis, Tennessee). The fourth will be removed from Quonset Point, Rhode Island, and erected at a new Weather Bureau Meteorological Observatory on Cape Cod.

Also under construction are two kinds of equipment ancillary to the radar. The first of these is scan-conversion transmitters, along with receivers, that prepare the radarscope pictures for transmission on regular telephone lines. These Weather Bureau Radar Remotes (WBRR) make it possible to inexpensively send radar weather pictures, along with annotations added by the radar meteorologists, to Weather Bureau offices that do not have radars. Considerable interest in this development has been expressed by other government agencies and by private industries. It appears that there will be a large demand for WBRR service outside the Weather Bureau.

Flash floods—generally caused by severe thunderstorms or by intense rainfall associated with hurricanes—in addition to being a terrifying experience to individuals, are usually devastating to property and the economy of the community involved. Adequate warnings of these events require detection, alarm, and response within minutes or a few hours. During FY 1969, the design and testing of a simple Flash Flood Alarm Gage was completed. This device offers promise as one of many methods to provide effective warnings to thousands of communities confronted with this type of flood problem.

An analysis of merchant ship traffic on the high seas was performed to assess the potential of merchant ships for use in a global weather observing system. The geographical distribution of sets of merchant ships and their individual route characteristics was determined. A cost-performance analysis showed that the use of merchant ships as platforms for upper-air, surface, and oceanographic observations appears in a favorable light compared with Ocean Station Vessels (OSV's).

COAST AND GEODETIC SURVEY

Mission

The basic mission of the Coast and Geodetic Survey (C&GS) is to provide charts and related information for the safe navigation of marine and air commerce, and to provide other earth science data and information for protection of life and property, and to meet engineering, scientific, defense, commercial, and industrial needs.

Functions

To fulfill the statutory functions of the C&GS, geodetic surveys are conducted; oceanographic, hydrographic, and topographic surveys are carried out; tide and current observations are made; geomagnetic, seismological, gravity and astronomic phenomena are investigated and measured; field surveys are conducted for aeronautical charts; and basic research in related geosciences is also pursued in support of these operational activities.

Products and Services

Nautical and aeronautical charts, and related information, are provided in support of marine and air commerce. To meet engineering, scientific, commercial and industrial needs, other products and services provided include geodetic data, earthquake lists, earthquake area maps, magnetic observations, magnetic storm reports, ocean water temperature and salinity tables, and tabulations of tidal behavior. Geomagnetic and seismological data centers are operated to serve as clearing houses in the United States for the collection, study, and exchange of data on a worldwide basis. Facilities are provided for on-the-spot examination and reproduction of the basic records.

Important among C&GS services providing an early awareness to the public of potential natural disaster is the National Tsunami Warning Center, which offers, for all populations along the Pacific Ocean, immediate alerting to the threatening dangers of seismic sea waves (tidal waves). In addition, through continuing investigations into the nature and origin of earthquakes and the individual responses to earth shocks displayed by various types of surficial geology, a valuable contribution is made to the knowledge of engineering design and construction and to the formulation of building codes necessary to prevent earthquake destruction.

The principal products and services of the C&GS are basic requisites in planning and operating extensive programs in transportation and communications, development of natural resources, hydrography and oceanography, agriculture and reclamation, public works and urban planning, and other programs affecting economic development. The principal areas supported by the C&GS are the maritime and aviation industries, the fishing industry, the petroleum industry, transportation and construction.

During FY 1969 the C&GS operated two photographic aircraft, a fleet of 14 oceanographic and hydrographic survey ships, and a network of permanent seismological, geomagnetic, and tide stations throughout the United States and abroad. It also occupied temporary stations for satellite geodesy and for geophysical observations in remote regions. In this fiscal year, geodetic surveys were accomplished by 24 field parties; 17 satellite triangulation cameras were operated under the technical direction of the C&GS; hydrographic surveys were conducted by two field parties, and tidal surveys by two parties. These surveys form an integral part of ongoing programs of the C&GS to provide a continuously updated coverage of the topography, and of the harbors, coastal waters, and airport facilities of the country. Extensive quantities of data of oceanographic, hydrographic, and geophysical importance were disseminated to user audiences during the year. In conjunction with these surveys, aeronautical and nautical charts were also printed and distributed in quantities running into many millions.

Functional and Organizational Changes

In FY 1969, a reorganization of the C&GS field structure was accomplished for purposes of reducing costs and improving efficiency.

Effective June 30, 1969, aeronautical and nautical chart distribution was discontinued from field offices in New York and San Francisco and was centralized in the Washington office. The chart distribution function in the Kansas City field office will be discontinued in October 1969. Thereafter, all charts will be distributed from Washington, D. C.

HYDROGRAPHY AND OCEANOGRAPHY

Field Operations

Hydrographic and oceanographic surveys were carried out in support of the continuing programs in nautical charting, continental shelf mapping, SEAMAP (deep-ocean mapping), and tide and tidal current predictions.

The ships WHITING, PEIRCE, DAVIDSON, McARTHUR, PATHFINDER, and FAIRWEATHER conducted hydrographic surveys of the coastal waters of Massachusetts, Connecticut, North Carolina, Puerto Rico, Washington, Alaska, and the Hawaiian Islands. Mobile field parties, which operate from shore bases, carried out inshore hydrographic surveys in certain Atlantic and Gulf coastal areas where the demand for

small-craft charts is particularly intense. The RUDE and HECK performed wire-drag surveys of the approaches to the harbors of Charleston, South Carolina, Wilmington, North Carolina, and Delaware Bay.

The OCEANOGRAPHER, DISCOVERER, RAINIER, and MT. MITCHELL were major participants in the Barbados Oceanographic and Meteorological Experiment (BOMEX). The ship DISCOVERER also participated in an international cooperative project with ships from West Germany and Great Britain.

The ship PATHFINDER conducted a special bathymetric survey off Southern California for the Pacific Missile Range. The MT. MITCHELL carried out a special transatlantic cable-laying survey between Rhode Island and Spain and also made oceanographic investigations of the properties of the Gulf Stream. The SURVEYOR continued work on SEAMAP, conducted physical oceanographic investigations of the Polar Front in the Northeast Pacific, mapped the bathymetry and geophysical parameters in the Norton Sound area of Alaska, and carried out magnetic surveys of the fracture-zone areas and conducted chemical oceanographic studies in the Northeastern Pacific. The OCEANOGRAPHER carried out oceanographic studies in the area of the Cobb Seamount, conducted geophysical surveys of the Juan de Fuca Ridge, and mapped the bathymetry and geophysical parameters of portions of the Norton Sound area. The ship FERREL carried out current surveys of the Mississippi River-Gulf outlet and in Penobscot Bay, Maine.

The Ship Construction Group continued to monitor progress of construction of the ship RESEARCHER which was christened at Toledo, Ohio, October 5, 1968.

Cooperation in Science and Technology

The above-mentioned interagency cooperation by C&GS ships in the BOMEX Project, the provision of research data requested by numerous scientists, and the participation of the DISCOVERER in the Atlantic Trade Winds Experiment with Great Britain and West Germany are but several examples of cooperative projects. During the past year, C&GS continued to make its shipboard time and space available for projects of other agencies and institutions when this did not interfere with the conduct of the C&GS mission.

Marine Mapping, Charting, and Oceanographic Services

During FY 1969, the C&GS issued seven new nautical charts and 487 revised printings. This makes a total of 822 nautical charts that the C&GS now has on issue.

The C&GS contributed 1,057articles (including submission of corrected chartlets) for the weekly publication *"Notice to Mariners"* which alerts chart users to any recent changes that have occurred affecting chart information.

Forty-three charts were specifically prepared to be used as court exhibits for C&GS participation in litigation cases. This type of activity has been increasing during the past several years.

Three 1:250,000-scale bathymetric maps were published during the year, and progress was made in the preparation of seven bathymetric and geophysical maps at the same scale. One *Coast Pilot* and annual supplements for eight other *Coast Pilots* were published.

The preparation of charts, maps, and oceanographic products involves two phases: (1) Data acquisition, and (2) data processing, compilation, and production operations. The C&GS continued in its efforts to make both these activities more efficient and economical by introduction of automation and the design and testing of new concepts. For example, a high-speed launch capable of increasing the output of hydrographic data several-fold was tested for operational effectiveness; new design concepts for small inshore hydrographic launches were formulated; the data acquisition and processing systems aboard the ships DISCOVERER and OCEANOGRAPHER were updated; automated, digital-recording tide gages were introduced into the C&GS primary network, replacing the older analog recording systems; studies were continued to determine the feasibility of publishing *Coast Pilots* and annual supplements by an electronic composing system; significant progress was made in the introduction and testing of equipment for the conversion of the hydrographic data and source material stored in C&GS filing systems into a digital format—an essential first step in the replacement of the present manual chart production system by a more efficient and economical automated system.

GEODESY AND PHOTOGRAMMETRY

Geodesy

During the fiscal year, about 2,100 new triangulation and traverse stations were established by cooperative agreements and by C&GS field parties. Projects included crustal movement studies, missile site surveys, and recomputation of older surveys for use in updating charts and maps.

On the Basic Net Releveling program, a total of 2,250 miles of high-accuracy first-order leveling was completed. This involved leveling in fifteen States. Also, computations and adjustments of precise leveling surveys by various state and county organizations are being undertaken.

Field operations for the high-precision transcontinental traverse surveys were completed between the satellite stations in Minnesota and Washington, and from Fort

Stockton in Texas to the satellite station in New Mexico. Presently, field operations are in progress between Columbus, Nebraska, and Gaithersburg, Maryland. This connection, expected to be made by the late fall of 1969, will complete the closure of a traverse loop which encircles a large portion of the eastern half of the country. Approximately 1,575 kilometers (979 miles) of traverse were completed for a total of about 10,298 kilometers (6,400 miles) since 1961.

The super-precise alinement survey of the Holloman Air Force Base high-speed test track was completed and a report was submitted to the requesting authorities. This alinement survey, perhaps the most accurate of its type ever made, was accomplished with very close cooperation between C&GS headquarters, where the work was analyzed and adjusted, and the field party. A comprehensive review of the data conclusively showed that the anticipated accuracy of the survey was achieved.

Field work was completed on the first-order, class I urban surveys made in cooperation with the local governments of the Metropolitan Houston area in Texas, in the State of Rhode Island, and in Albuquerque, New Mexico. Similar surveys are in progress in Monroe County, New York, and Oahu, Hawaii.

Field work to investigate the accuracy of trilateration as compared with triangulation was completed for a small net in the Anza-Borrego Desert area, California, and an arc between Winnfield and Campti, Louisiana. In both projects the angular observations were made as well as the distance measurements. An office evaluation is underway.

Extensive surveys at the Atomic Energy Commission's test range in the vicinity of Tonopah, Nevada, were completed. Special-purpose surveys were also completed for the Defense Department, the Forest Service, and the Government of American Samoa.

Adjustments were completed for crustal movement surveys in the Imperial Valley area and Taft-Mojave area of California. Reports were prepared for both projects. Crustal movement surveys, involving Hollister-type figures, were continued in California. The assistance provided in the past by the California Department of Water Resources was continued during the year.

Earth movement surveys, made in cooperation with the Atomic Energy Commission, were completed at three sites in Nevada prior to an atomic experiment and resurveyed at the conclusion of the test. A network of first-order, class I triangulation was completed in the vicinity of the Rocky Mountain Arsenal near Denver, Colorado. This project is scheduled to be resurveyed in the fall of 1969 as part of the effort to determine the extent of crustal movement and the reason for the recurring earthquakes in this area.

A preliminary adjustment of a large area network in the vicinity of Oklahoma City, Oklahoma, was made at the request of the state highway department. Numerous electronically measured distances that were made by the state were incorporated in the computation. In addition, surveys accomplished by the state in this locality were adjusted in a supplemental computation.

In the area of astronomic activity, 163 latitudes, 167 longitudes, and 109 azimuthes were observed for control of triangulation and traverse, figure-of-the-earth studies, and measurement of crustal movements. Two of the five latitude observatories of the International Polar Motion Service at Gaithersburg, Maryland, and Ukiah, California, were operated throughout the year.

Additional sections of the geoid were determined over recently completed portions of the transcontinental traverse, and a complete adjustment was made for the geoidal loops observed to date.

Gravimetric activities included a land survey in Oklahoma, and a marine survey in a portion of Norton Sound. Marine gravity tracklines were measured on the Lesser Antilles Arc and Atlantic Trade Wind Experiment (ATEX) projects, and a bottom gravity survey was conducted in the area immediately west of Cape Flattery, Washington.

Photogrammetry

In support of, and coordinated with, the Aeronautical Charting, Marine Navigational Charting, Oceanographic, and Geodetic Programs, operational photogrammetry was used to make detailed surveys of land areas and to obtain and provide a variety of data and services for survey programs and studies.

This work included: (1) The operation of aircraft for the acquisition of metric aerial photography for use in coastal mapping, chart maintenance, tidal current, and crustal movement measurements, airport obstruction charting, special photogrammetric surveys for other Federal and State agencies, and for research and development studies on novel applications of photogrammetry to various surveying, mapping, and measurement problems; (2) field surveys to establish supplemental control and to obtain survey data for mapping; (3) analytical aerotriangulation to control mapping and to position specific features or objects such as landmarks for charts and aids to navigation; (4) photogrammetric data-reduction measurements of star plates, and the electronic processing of programed computations for satellite triangulation; (5) stereoscopic instrument compilation of shoreline map manuscripts, chart topography, and airport obstruction charts; and (6) the distribution of aerial photographs and processed photogrammetric survey and map data to users.

Two aircraft were used to obtain panchromatic, infrared, and color aerial photography with wide-angle and super

wide-angle single-lens, precision metric cameras. The primary areas of photographic interest were coastal areas and commercial airports. Special-purpose aerial photography was obtained to provide: (1) Tide-controlled infrared photography for the accurate location of the mean high-water line, and (2) tide-controlled color photography at low-water for compilation of rocks, obstructions, and alongshore detail, and for the location of navigational aids and other features of importance to the mariner. About 11,500 linear miles of aerial photography were flown.

In connection with coastal mapping, chart maintenance, and tidal current survey projects, photogrammetric field survey units provided photo-hydro support to eight C&GS vessels and shore-based launch parties engaged in hydrographic operations; installed and monitored tide staffs for tide-controlled infrared photography; recovered and premarked control prior to aerial photography; field-edited shoreline surveys and chart drawings; and inspected marine facilities for the preparation of small-craft and intracoastal waterway charts. In connection with the airport obstruction charting activity, aeronautic field survey units were assigned to survey airports and locate aids to air navigation for the Federal Aviation Administration (FAA).

The photogrammetric office activities provided detailed mapping information used in: nautical chart construction and maintenance; shoreline surveys and supplemental control for hydrographic operations; location of landmarks and aids to navigation; reduction of tidal current measurements; and other technical services. This fiscal year about 112 shoreline maps with specially prepared aerial photographs and related photogrammetric data were furnished C&GS vessels for use on hydrographic operations. In chart maintenance work, a total of 425 regular charts, small-craft charts and basic map drawings were corrected from new aerial photography. Color photography was used for the photogrammetric location of over 600 aids to navigation and about that number of landmarks on map and chart drawings. The compilation and publication of 150 special airport obstruction charts, including the location of four air navigational facilities and the construction of 40 noise-abatement mosaics was a service requested by, and performed for, FAA.

During the year, the Photogrammetry Division on its satellite triangulation data-reduction effort measured a total of 465 star plates.

A reimbursable agreement was made with the Department of Housing and Urban Development in May 1969, for ESSA to conduct a pilot project in coastal flood studies.

Toward the end of the fiscal year, the Coast and Geodetic Survey entered into a cooperative agreement with the State of Florida to map the mean low- and mean high-water lines along the tidal waters of the state's Atlantic and Gulf Coasts.

Geodetic Satellite Program

The Geodetic Satellite Program continued during FY 1969 on the worldwide geodetic network known as the National Geodetic Satellite Program (NGSP). The network is being established through the joint efforts of the National Aeronautics and Space Administration and the Departments of Defense and Commerce, in cooperation with West Germany, the United Kingdom, South Africa, Australia, and other nations on whose territories camera stations of the world network are located.

Four of the present 14 camera systems owned by the United States are operated by the Army Topographic Command (TOPOCOM), seven by the C&GS, and one each by the United Kingdom, South Africa, and Australia. Two camera systems are owned and operated by West Germany. In addition, one U.S. Air Force PC-1000 camera and team joined the program in May 1969 and is in American Samoa to assist in meeting the proposed completion date of June 1970. There is a C&GS employee attached to each team except those operated by TOPOCOM. The C&GS has the overall technical responsibility for the program. This includes the task of maintaining all camera systems and furnishing all correct time.

The combined systems were manned and operated at 29 stations around the world. The satellite PAGEOS was used for over 90 percent of the successful simultaneous photographic events from two or more stations. Echo II and GEOS II satellites were used for the remaining successful simultaneous events.

Field evaluation of all events shows 303 successful simultaneous events, including 267 two-station, 35 three-station, and one four-station event. On June 7, 1969, the Echo II satellite entered the earth's atmosphere and decayed. The second of the four flashing lamps on GEOS II failed on August 27, 1968. The magnitude of the two remaining lamps is such that the BC-4 cameras cannot photograph their flashes.

With the transfer of parties from Tristan da Cunha and Pitcairn Island and the movement of the Applications Technology Satellites (ATS) to the Pacific Ocean area, the use of the ATS method of time transfer has been greatly lessened. The system utilizing the Navy Navigation Satellites has proved very satisfactory. It is now in use at the Palmer, McMurdo, Mawson, and Wilkes stations in Antarctica as well as at Heard Island in the South Indian Ocean. Accuracies of better than ±50 microseconds are being achieved.

During fiscal 1969, a total of 447 plates was measured

and 465 plates were processed through stages of analysis and computation. Thus far in the program as a whole a total of 1,316 plates has been measured and 1,268 have been processed through analysis and computation.

Geodetic Research and Development Laboratory

The advent of artificial close-to-earth satellites offers new possibilities for geodesy, and in recognition of this, the major research effort is directed toward the domain of satellite geodesy.

After pioneering the geometric satellite method, considerable effort has been successfully expended in optimizing it from both the theoretical and application standpoints. The method has been developed to produce three-dimensional triangulation results accurate to better than one part in a million with respect to earth dimensions. Thus, this method provides, at present, the highest possible accuracy for establishing a unified worldwide geodetic reference system essentially free of any physical hypothesis and, at the same time, provides the potential for establishing, in an economical way, continental densification triangulation with an accuracy superior to any known classical method.

Continuous support has been given to the reduction and analysis of the data collected in the C&GS-DOD Worldwide Geometric Satellite Triangulation Program.

As a spin-off from these efforts, analytical photogrammetric camera calibration procedures have been established. These procedures are a prerequisite to the application of photogrammetric techniques for the determination of lower-order geodetic control in support on one of ESSA's missions in response to mapping and civil engineering requirements. A continuing effort is directed toward the development of more economical and flexible computer programs for the adjustment of large blocks of aerial photography.

The time-varying aspects of geodetic measurements present special problems for research. Effort is made to study crustal movements as monitored by geodetic and photogrammetric techniques. These studies are being made to define more accurately the amount of crustal movement, or fault slippage, in regions of seismic activity. From the data, it is possible, for example, to calculate the rate of increase of elastic strain, and to provide information which it is hoped will eventually assist in developing a program of earthquake prediction.

The Gravity Measurement Systems project is a comprehensive study of present and proposed marine and airborne gravity measurement systems pointing to the perfection of reliable operational systems; its purpose is to develop modern, effective data-gathering and processing techniques, and instrumentation to measure secular and diurnal variations of gravity.

SEISMOLOGY AND GEOMAGNETISM

Seismology

The National Earthquake Information Center (NEIC) continued in its third year of operation, as a focal point for the dissemination of seismic information, both immediate and historical, for technical and public use. Rapid and accurate hypocenter locations and magnitude values were provided on 58 large earthquakes during the year, based on reports received regularly from College, Alaska; Newport, Washington; Honolulu, Hawaii; Guam; and Tucson, Arizona. These were supplemented by reports from the Tsunami Warning System, the tripartite station near Rockville, and routine solicited reports. The range of this coverage is essentially the hemisphere centered on the United States. The NEIC also serves as a focal point for numerous other seismological services of the C&GS which include studies using the historical files of earthquakes and the Preliminary Determination of Epicenter program. Under the latter, 5,538 hypocenters were calculated by electronic computer for publication and distribution on a twice-weekly schedule.

The Standard Seismograph Network, comprised of 114 stations equipped with identical sets of ultrasensitive seismographs and related instrumentation, continued to function effectively. The National Science Foundation provides funding to ESSA for essential assistance and material for the foreign stations, while ESSA maintains a curtailed assistance program for domestic stations.

During the reporting year, severe earthquakes occurred as follows: in the Philippine Islands (magnitude 7.3); Mexico (magnitude 7.1); Celebes (one magnitude 7.4, and one magnitude 6.9); Iran (magnitude 7.3, 11,588 killed); and Portugal (magnitude 6.6). The largest earthquake in the central interior of Alaska since 1947 occurred on October 29, about 80 miles north-northwest of Fairbanks, with a magnitude of 6.5. On November 9, a magnitude 5.3 earthquake occurred in southern Illinois and was felt over 400,000 square miles and 22 states.

A contract was awarded to the University of Hawaii for the establishment of an experimental regional tsunami warning system for Hawaii. Data from seismic and sea-level sensors situated on several of the Hawaiian Islands will be telemetered to the warning center at Honolulu Observatory where rapid analysis will permit early warnings of locally generated tsunamis. The International Tsunami Information Center (ITIC) was established at Honolulu, Hawaii.

Plans are underway to expand the Tsunami Warning System to include, eventually, 30 seismograph stations, and 120 tsunami detectors (tide gages and wave sensors) in a network which will telemeter actual recordings via a geostationary satellite to an analysis center in Hawaii. Automatic transmission by triggering, or on query, automatic signal identification, and on-line hypocenter

and tsunami arrival-time computations are being planned. The first Geostationary Operational Environmental Satellite (GOES) is now being designed, programing and automatic sensing are being investigated, and undersea stable platforms for wave gages and ocean-bottom seismometers are being tested.

A report on Phase I of a program to monitor the basic, naturally occurring seismic activity associated with New Hampshire's weather-carved tourist feature "The Great Stone Face" was completed and submitted to the state highway department. A continuous background-recording program, and the corollary program to determine the effects of possible damage to this natural monument resulting from dynamite blasts in connection with nearby major highway construction, will be carried out during the next fiscal year.

During experimental development of nuclear rocket engines at the nation's test centers, some rather critically stable ingredients are used. This necessitates careful checking and regulation of any vibrations received by their containers. To this end, the seismic vibrations from the larger underground nuclear detonations at the Nevada Test Site are being monitored at the Nuclear Rocket Development Station (NRDS) nearby. Records are immediately analyzed by the C&GS and results are given to NRDS within a few hours after the blast.

A series of cratering projects, utilizing chemical explosive row charges, was developed by the U.S. Army Engineers Nuclear Cratering Group to comprise preliminary studies for eventual use in digging canals, harbors, etc. To assist in the refinement of the yield scaling and prediction formulae, and in the investigation of the seismic radiation and propagation pattern of such row charges, the detonation of a row charge near Fort Peck, Montana, was monitored.

A field investigation and post office canvass carried out immediately following the November 9, 1968, southern Illinois earthquake revealed that minor damage occurred in an area of approximately 56,000 square miles. The strongest shaking, corresponding to intensity VII on the Modified Mercalli Scale of 1931, was confined to lowland areas in south central Illinois and adjacent portions of Kentucky and Indiana. Earthquake damage consisted primarily of shattered chimneys, broken windows, and cracked plaster. There were also occasional cases of collapsed parapets in the epicentral area.

A preliminary report containing a comparison of seismograms recorded by United States and USSR instruments operated in parallel has been delivered to the Arms Control and Disarmament Agency. The report also contains an evaluation of the relative performance of the C&GS epicenter location program and its counterpart in the USSR, and a discussion of magnitude determination techniques. Analysis of certain data in the report will lead to an improved understanding of the factors involved in a comprehensive test-ban treaty.

During FY 1969, a standard seismograph station having three short-period and three long-period components was established at Kabul, Afghanistan. This extensive effort included installation of equipment, training of local personnel in seismogram interpretation, and establishment of telegraphic communication with NEIC.

The Albuquerque Seismological Center continued its program of providing logistics and maintenance support for the World-Wide Network of Standard Seismograph Stations and the C&GS-ESSA Seismograph Network. In the area of instrument development, five aftershock seismograph systems and six engineering seismograph systems were perfected and produced. These systems are slightly different but are based on the concept of a highly portable, self-contained unit, including power supply, which can be taken into the field in even the most remote areas, on short notice. They are designed for special field studies following large earthquakes.

Seismological Research

Seismological research has been conducted in three broad categories: engineering seismology, seismic-wave travel times and earth structure, and tsunami generation. Engineering seismology includes studies of seismicity and earthquake risk, and the nature of the amplification of seismic energy upon passage through low-density, near-surface materials. These studies enable the prediction of areas of potentially high earthquake damage and facilitate land-use planning. Research on seismic-wave travel times is used to infer details of earth structure. Improved travel-time tables permit earthquake hypocenters to be determined with greater precision and, subsequently, more accurate correlations to be made between the spatial distribution of earthquakes and mappable geologic features. Such correlations are particularly useful in delineating areas of potentially high earthquake damage. Tsunami (seismic sea-wave) generation studies have been directed toward identifying parameters of the earthquake focal region uniquely associated with the production of tsunamis. Such identifiers, should they be found, offer the potential of giving warning of an approaching tsunami to areas near its source and for providing an early warning to distant points. The early warning of an impending tsunami could be the margin needed to evacuate low-lying areas.

Engineering seismology studies have been conducted in three areas: (1) Seismic-risk studies in the United States; (2) estimation of possible earthquake losses in the State of California; and (3) estimation of soil-amplification variations in the high-intensity region of an earthquake. The seismic-risk studies were based on a compilation of data associated with approximately 28,000 shocks, which comprises the historical record of earthquake occurrence in the conterminous United States. A

seismic-risk map was developed and represents a revision of the seismic-probability map prepared by the Coast and Geodetic Survey in 1947. In the new map, seismic risk is presented as a contour system of four levels: no damage, minor damage, moderate damage, and major damage.

California was selected as a pilot area for the study of losses to residential housing resulting from earthquakes because of the relatively high seismicity and the large dollar value of structures in the area. In this study, the seismological basis for the evaluation of earthquake damage and the relationship between these seismological data and dwelling damage factors have been dealt with in considerable detail. A general technique for computing earthquake losses, that is, for representing the interrelations between seismological, engineering, and census data mutually developed to define earthquake losses, has been achieved.

The third of the studies in engineering seismology utilized the very favorable circumstances afforded by the Caracas, Venezuela, earthquake of July 29, 1967, for investigation of the relation between the damage distribution in an earthquake region and the underlying soil and rock characteristics. An important phase of this experiment was the recording of microtremors in zones of high, intermediate, and low damage resulting from that earthquake. The object of this phase was to establish correlations between observed building damage patterns and observed amplification of the microtremor energy at each recording site.

The present research on tsunami generation has two goals: The first is to improve the known relationships between tsunami generation and earthquake magnitude, focal depth, water depth, epicentral distance from shore, submarine topography, and past tsunami history of a given area. The second goal is to develop a relationship between earthquake focal mechanisms and tsunami generation. In the past year, significant progress has been made in inferring from data the probable characteristics of an earthquake focus. This refinement may well have additional benefits in studies of large regional movements of the earth's crust.

Geomagnetism

The basic mission of the Coast and Geodetic Survey geomagnetism program is the attainment of high-quality data through the operation of widely dispersed magnetic observatories and the execution of field surveys, both land and marine.

Fourteen C&GS-operated magnetic observatories areally dispersed over much of the globe continued throughout the year to register time-dependent variations in the earth's magnetic field. An additional observatory, in operation over a three-year period on the high plateau area of Antarctica, terminated operations in December 1968 with the closing of Plateau Station by the National Science Foundation.

Field survey activities were conducted both on land and at sea. Nineteen strategically placed repeat magnetic stations, spatially located between the magnetic observatories so as to maximize their usefulness in the assessment of the distribution of secular change rates, were occupied. The resulting data, along with those collected over the preceding four years through similar surveys and from the operation of the magnetic observatories, constitute a major input to the updating of the magnetic charts that are being compiled for publication in early 1970.

Magnetic surveys of marine areas, consisting of single track, profile-type surveys as well as systematic surveys of relatively large ocean areas were conducted during the year by nine magnetometer-equipped C&GS ships. Chief among the marine magnetic survey accomplishments was the systematic geophysical survey work of the USC&GS OCEANOGRAPHER and the USC&GS SURVEYOR on the Norton Sound Project in Alaska. The data collected from this project, scheduled to extend over a three-year period, will be of major significance in the assessment of the economic potential of that area.

Magnetic charts most typically represent the end products of the C&GS geomagnetism program. As a result of the recent addition to the file of data from several thousands of data points, the 1970 issue of the World Magnetic Charts will reflect input from some 280,000 data points throughout the world. This fact, plus further development and refinement of analytic techniques since the last issue, will insure that the 1970 magnetic charts will be the most accurate published to that time. These charts are compiled in collaboration with the U.S. Naval Oceanographic Office, and in consultation with the Royal Greenwich Observatory of Great Britain and the Dominion Observatory of Canada.

An event of great significance in which program officials participated during the year was the adoption, in October 1968, of an International Geomagnetic Reference Field (IGRF). This action was taken in Washington by the International Association of Geomagnetism and Aeronomy (IAGA) at a meeting in which many of the world's leading geomagneticians participated. Copies of a FORTRAN computer program developed in the C&GS for application of the IGRF to magnetic survey data have been furnished on request to many interested parties, particularly the major oil companies. (The program is available through the Geomagnetic Data Center, Environmental Data Service, ESSA.) Subsequent to development of the program, the C&GS published tables listing the worldwide values of intensity of the earth's magnetic field for every two degrees of latitude and longitude.

Geomagnetic Research

For the first time, mathematical models of secular change, applicable for the time interval 1940-70, were derived by spherical harmonic analysis to degree and order 8. This development formed a part of the preparation for issuing the 1970 United States and World Magnetic Charts, in which the manual phases of conventional cartographic processes are being replaced by automated techniques based on mathematical models.

A mathematical model of geomagnetic secular change which had been submitted by the C&GS to Commission 2 of the International Association of Geomagnetism and Aeronomy for consideration as part of an International Geomagnetic Reference Field (IGRF) was acted on favorably in October 1968. The C&GS model was given weight with five other models in the adopted IGRF. The C&GS submitted plans for the automated compilation of the United States World Magnetic Chart for 1970 to the October 1968 symposium on "The Description of the Earth's Magnetic Field."

AERONAUTICAL CHARTING AND CARTOGRAPHY

Chart Production

C&GS produced more than 31.3 million copies of nautical and aeronautical charts in fiscal year 1969 to serve commerce and industry, and to fulfill one of its basic missions in Federal chart publication. These charts were made available to the public by 1,730 sales agents throughout the United States. Approximately 28.7 million copies of 2,328 aeronautical charts of the United States and possessions, on issue, were compiled, printed, and distributed to satisfy the requirements of both civil and military aviation, in addition to charts of international airways required primarily by United States civil aviation. A further 170,000 copies of U.S. Air Force charts of foreign areas were distributed to civil users. Approximately 2.6 million copies of 852 nautical charts on issue were distributed. Nearly two million hand corrections were applied to the nautical charts. Effective June 30, however, the hand correction of nautical charts was discontinued. About 3.9 million copies of informational publications were distributed to marine, aeronautical, and scientific interests. An automatic distribution system was established whereby nautical chart agents receive, immediately upon publication, the new editions of charts which they select.

Chart development and implementation of U.S. Government specifications for joint civil/military aeronautical charts and textual materials to eliminate duplication of production is a continuation of a program begun in FY 1966 through Inter-Agency Agreement among the Departments of Commerce and Defense and the Federal Aviation Administration.

Enroute low-altitude charts and high-altitude charts of the conterminous United States and Alaska were updated and reissued every 28 days to meet requirements of Federal Aviation Administration regulations. Instrument Approach Procedure Charts were produced or reissued as required by changes in Federal Aviation Administration regulations.

Aeronautical charts printed by the Reproduction Division included 290 Visual Navigation Charts, 1,124 Radio Facility Charts, 4,269 Instrument Approach Procedure Charts, and 20 Standard Instrument Departure Booklets. For marine users, copies of 475 navigation charts and 60 correction chartlets were printed. The support printing for ESSA programs totaled 7,489 printing jobs and 5,255 (non-printed) services.

ENVIRONMENTAL DATA SERVICE

Functions

The Environmental Data Service (EDS) of ESSA is responsible for the collection, processing, archiving, dissemination, and recall of environmental data, and for research activities designed to improve these services, and to make the data more meaningful and valuable to the user.

In support of these functions, EDS maintains the National Weather Records Center and Geophysical Data Center (Geodesy and Seismology) at Asheville, North Carolina, and the Geomagnetic Data Center in Washington, D. C. In addition, EDS provides program guidance for ESSA's Aeronomy and Space Data Center at Boulder, Colorado.

The EDS Field Service Program, operated through the Regional Headquarters of the Weather Bureau, consists, in essence, of a State Climatologist for each State to serve data users within that State. His duties also include analyzing the climate of his State, collecting severe storm data, preparing portions of the State's weekly weather and crop analysis and, as time permits, conducting climatological research.

An Office of Data Information is maintained in EDS headquarters to provide rapid servicing of user requests

for environmental data, particularly for interpretive analyses of the data.

The Weather Bureau maintains for EDS a substation network of climatological stations necessary to sample adequately the climate of the United States. A network of selected reference or "benchmark" stations is currently being instrumented to serve as key monitoring stations.

Major Accomplishments

In October 1968 the Environmental Data Service published the *"Climatic Atlas of the United States."* This collection of 271 maps and 15 tables shows the national distribution of averages or extremes of temperature, precipitation, wind, barometric pressure, relative humidity, dew point, sunshine, sky cover, heating degree days, solar radiation, and evaporation. The maps are all drawn on the same base to permit comparison and correlation of various climatic elements and patterns.

As part of the Global Atmospheric Research Project (GARP), the World Meteorological Organization is organizing a program for the international collection of the most complete sets of global atmospheric data possible for November 1969 and June 1970. Many of these data will be collected by the Weather Bureau's National Meteorological Center and the National Environmental Satellite Center. EDS will coordinate the participation of all ESSA agencies and the cooperating centers in Costa Rica and Australia and will also arrange for collection of missing or erroneous reports for the Northern Hemisphere.

The Environmental Data Service is publishing cooling degree day, as well as heating degree day, statistics in its series, *Local Climatological Data*, prepared monthly for all first-order Weather Bureau Stations. Cooling Degree Days may be used to estimate peak power loads for air conditioning, and are calculated by subtracting a base value, 65°F, from the daily average temperature (negative values are treated as zero). The daily values can be accumulated over any time period of interest to the user.

EDS' Earth Sciences Division is creating a machine-readable file of all geomagnetic hourly value data gathered by U.S. observatories since the turn of the century, when these observatories first began operations on a permanent basis. More than 200 observatory-years, or 60 percent of available U.S. data, have already been put on magnetic tape in the standard format required for modern techniques used in analyzing fluctuations of the magnetic field. In addition, EDS' Geomagnetic Data Center has also been acquiring magnetic tapes of similar data from foreign observatories. These, however, are available only for periods since the International Geophysical Year (1957-58).

NATIONAL ENVIRONMENTAL SATELLITE CENTER

Functions

The National Environmental Satellite Center (NESC) is responsible for coordinating all satellite activities of the Environmental Science Services Administration (ESSA) and for operating its operational satellite systems. During this fiscal year, NESC continued to operate the National Operational Meteorological Satellite System (NOMSS) with the Environmental Survey Satellites, ESSA 2, 5, 6, 7, 8 and 9, the latter three being launched in FY 69.

The present satellite system, which meets the interim objectives of NOMSS, provides cloud pictures of the entire sunlit portion of the earth twice each day. One satellite takes and transmits Automatic Picture Transmission (APT) pictures as it passes overhead during local mid-morning. The APT picures are for local use and may be received by relatively inexpensive ground stations. Some 490 stations in 50 countries have been established to receive these data. The other satellite of the system takes and stores global data during the local afternoon hours. These data are transmitted to two United States Command and Data Acquisition stations and retransmitted to the NESC for processing and dissemination.

The current major responsibilities of NESC are (a) to maintain, operate and improve the NOMSS to provide daily global cloud coverage regularly and routinely; (b) to establish a satellite system to provide continuous cloud cover surveillance globally; and (c) to develop instrumentation to obtain quantitative atmospheric measurements required for numerical weather forecasting. Other responsibilities are to receive, process, analyze and disseminate satellite data; to conduct research to improve methods for interpreting and using satellite data, and to design and develop new sensor systems for measuring environmental parameters from satellites.

Operations

During Fy 1969, six ESSA satellites were in operation. In April 1969, NASA's Nimbus III research and development satellite was launched carrying an infrared spectrometer which had been designed and developed by the NESC. The spectrometer produces vertical atmospheric temperature soundings at intervals along the satellite orbital track. In accuracy, these soundings compare

favorably with measurements from the conventional radiosonde. These data are now used daily by the Weather Bureau in the routine numerical weather prediction program.

Since late FY 69 ESSA has joined with NASA in operating the Applications Technology Satellites (ATS) I and III to extend the period of useful meteorological experimentation. Picture data are now acquired daily by the ESSA ground station at Wallops, Virginia directly from ATS I and relayed in real time to NESC for analysis. ESSA also operates the Weather Facsimile Experiment(WEFAX) on both ATS I and III, broadcasting specialized charts to participants around the Pacific and Atlantic basins. Time-lapse movies from the ATS I pictures are analyzed by the NESC and winds are derived from the cloud motions. These derived winds are used daily by the Weather Bureau in the numerical weather analysis and prediction program. Development of techniques for determining low level winds from ATS data was initiated in FY 69 and progress continues.

The development of the Improved TIROS Operational Satellite (ITOS), started in FY 67, has progressed satisfactorily. NASA is planning to launch TIROS-M, the prototype of ITOS, during the fall of 1969. This spacecraft, a third generation meteorological satellite, combines the stored data and automatic picture transmission capability in a single satellite, instead of in the two ESSA spacecraft used for the TIROS Operational Satellite (TOS) system. Thus, one of the basic objectives of the national system can be met with fewer launchings and lower total cost. The improved spacecraft will provide nighttime cloud cover mapping and surface temperature measurement capabilities and will carry sensors for other than meteorological uses.

During FY 69, the six ESSA satellites were fully operational for a total of 1388 days and furnished a total of 73,828 meteorologically usable pictures. The 56 named hurricanes and typhoons during FY 69 were tracked by these satellites and, in most cases, were discovered by satellite. In addition, 1,348 special tropical storm advisories were sent to meteorological services worldwide.

ESSA RESEARCH LABORATORIES

Functions

The ESSA Research Laboratories (ERL) conduct and sponsor investigations needed to develop the new and useful knowledge man requires to cope with his physical environment. ERL is composed of twelve major research organizations and supporting administrative and service units. The Office of the Director is located in Boulder, Colorado, as are major portions of six of the research units: Earth Sciences Laboratories, Atmospheric Physics and Chemistry Laboratory, Space Disturbances Laboratory, Aeronomy Laboratory, Wave Propagation Laboratory, and the Institute for Telecommunication Sciences. The Pacific Oceanographic Laboratories are located in Seattle, Washington; Atlantic Oceanographic & Meteorological Laboratories, Miami, Florida; Air Resources Laboratories, Silver Spring, Maryland; Geophysical Fluid Dynamics Laboratory, Princeton, New Jersey; National Severe Storms Laboratory, Norman, Oklahoma, and Research Flight Facility, Miami, Florida. A brief summary of the functions of each of the laboratories of ERL follows:

The *Earth Sciences Laboratories* (ESL) conduct research in geomagnetism, seismology, geodesy and related earth sciences, seeking fundamental knowledge of earthquake processes, of the internal structure and accurate figure of the earth and the distribution of its mass.

The *Atlantic Oceanographic and Meteorological Laboratories* (AOML) were reorganized in fiscal year 1969 to bring together the scientific programs of the former Atlantic Oceanographic, National Hurricane Research (NHRL) and Experimental Meteorology Laboratories (EML) (all located in the Miami, Florida, area). AOML conduct research toward a fuller understanding of processes in the ocean, research on hurricanes and tropical meteorology, and studies methods for changing tropical atmospheric processes in a beneficial manner.

The *Pacific Oceanographic Laboratories* (POL) conduct oceanographic research toward fuller understanding of the ocean basins and borders, oceanic processes, sea-air and land-sea interactions to improve the marine scientific services of ESSA.

The *Atmospheric Physics and Chemistry Laboratory* (APCL) performs research on processes of cloud physics and precipitation and the chemical composition and nucleating substances in the lower atmosphere. The Laboratory is ESSA's major focus for design and conduct of laboratory and field experiments toward developing feasible methods of practical, beneficial weather modification.

The *Air Resources Laboratories* (ARL) conduct research on diffusion, transport, and dissipation of atmospheric contaminants using laboratory and field experiments to develop methods for prediction and control of atmospheric pollution.

The *Geophysical Fluid Dynamics Laboratory* (GFDL) conducts investigations of the dynamics and physics of geophysical fluid systems to develop a theoretical basis, by mathematical modeling and computer simulation, for understanding and predicting the behavior and properties of the atmosphere and the oceans.

The *National Severe Storms Laboratory* (NSSL) conducts studies to improve the understanding of tornadoes, squall lines, and other severe storms; to provide improved capabilities for their prediction; and to develop improved methods for their early detection and identification.

The *Space Disturbances Laboratory* (SDL) conducts research and provides Forecast and Warning Services and Space Data Center services relating to the monitoring and prediction of fluctuations and disturbances in the earth's space environment, particularly those associated with solar activity, which have important implications to man's utilization of the upper atmosphere and space, as well as influences on and interactions with the lower atmosphere.

The *Aeronomy Laboratory* (AL) studies the nature of and the physical and chemical processes of the ionosphere and exosphere of the earth and other planets. The program includes theoretical laboratory, rocket, satellite, and ground-based studies.

The *Wave Propagation Laboratory* (WPL) acts as a focal point for wave propagation research directed toward the extension of telecommunication to higher frequencies, and for the development of new methods for remote sensing of man's geophysical environment.

The *Institute for Telecommunication Sciences* (ITS) is designated as the central Federal agency for radio wave propagation research and services. As such, there exists a dual role, one facet of which is furthering the scientific expertise in the field of communications including rendering technical assistance to other federal agencies, and the other is aiding in policy formulation and implementation within the Federal Government. ITS is the single most active area in the Federal Government involved in the International Radio Consultative Committee (CCIR), the primary international organ in telecommunications. ITS provides Technical information on radio propagation factors affecting design and use of ionospheric and tropospheric radio systems. The emphasis is on environmental radio transmission problems, and methods of measurement for radio communication, navigation, timing, detection, and positioning systems. A major objective is the development and improvement of techniques for predicting telecommunication system performance to provide optimum use of the electrospace.

The *Research Flight Facility* (RFF) meets the requirements for ESSA and other interests for atmospheric and other environmental measurements from aircraft, and for outfitting and operating aircraft specially instrumented for research.

Representative examples of FY 1969 accomplishments follow:

EARTH SCIENCES

The Earthquake Mechanism Laboratory of ESL has greatly expanded its capability to monitor fault creep at several places along the San Andreas Fault and other faults in California. As of this time, 25 creep-meter units have been installed at 14 locations. Another aspect of long range fault creep monitoring involves the periodic remeasurement of a series of survey lines. These resurveys detect movements in the immediate vicinity of the faults. In addition, to the basic scientific value of these studies, they bear directly on the search for methods of earthquake prediction.

A series of papers on P-wave Travel Times was published in the Bulletin of the Seismological Society of America. These important papers represent the culmination of three years of cooperative work among fourteen seismologists representing universities, governmental agencies, and private research organizations in the United States and Great Britain. The principal use of the results will be improvements in the capability to locate earthquakes and underground nuclear explosions.

During fiscal year 1969 Laboratory staff members served as consultants with or speakers to such local groups as: The Office of Emergency Planning Regional Preparedness Committee developing emergency plans to be put into effect in the event of a major earthquake in California; the Society of Real Estate Appraisers; the Coordinating Committee for East Bay Fault Slippage in Hayward; a meeting of representatives from engineering-geology firms in the San Francisco Bay area; and the Governmental Services Committee of the City of San Francisco concerned with a proposed parapet hazard abatement law. These activities demonstrate the awareness and concern of local government, professional, and civic groups toward earthquake hazards and part of the role that government organizations must play.

Research in paleomagnetism affords the opportunity to apply previously unused techniques and approaches to paleo-intensity measurements which will, through the analysis of prehistoric data, contribute to the understanding of the earth's magnetic field origin, present condition and anticipated change. These studies become relevant to our national interest because of the role of the geomagnetic field in such activities as navigation, mineral resource surveys, and radiowave communications.

A 416-page monograph on "Mathematical Geodesy" which updates the mathematical theory of geometrical geodesy, based on the application of tensor calculus

which was completed last year will be published in September 1969. This is ESSA's second monograph and an important contribution to the science of geodesy.

Critical tests of WPL's 2-wavelength optical distance measuring instrument at the Stanford Linear Accelerator Center demonstrated the feasibility of measuring distance to better than one part in a million. An accuracy of a few parts in 10 million is expected with further refinement of the instrument. For accurate geodetic measurements such an instrument has the advantage that a single determination suffices instead of the multiple determinations required by less accurate methods.

Earth strains in the vicinity of a large underground nuclear explosion were successfully measured. The results are important in evaluating the possibility that such an explosion could trigger a large earthquake at some distance from the explosion. Steplike residual strains were recorded which agree with those reported for earthquakes of the same magnitude. A most significant observation was that, whereas earthquake steps do not decay within several days, if at all, the strain step from the nuclear explosion apparently decayed to near zero within half an hour. This decay with time appears to be a reflection of the pressure history of the cavity. This may therefore provide a very good way of distinguishing underground nuclear explosions from natural earthquakes.

A seismic profile across California's Central Valley was carried out successfully using energy from underground nuclear explosions in the megaton range. This survey revealed details of earth structure not obtained in any previous attempts employing conventional explosives as sources of seismic energy.

OCEANOGRAPHY

The Atlantic Oceanographic and Meteorological Laboratories and the Pacific Oceanographic Laboratories programs of research are directed toward understanding and exploring the mechanisms of the oceans, their interaction with atmosphere and solid earth for new and improved environmental sciences. During the year, the Atlantic Oceanographic Laboratories and National Hurricane Research and Experimental Meteorological Laboratories were combined administratively in anticipation of their co-location in a new research facility on Virginia Key in Miami, Florida.

Studies of ocean dynamics in 1969 concerned the several scales of motion in the sea: large current systems, and a complex pattern of smaller scale motions. Through field observations of the core of the Gulf Stream by ESSA ships, as well as mathematical simulations, drogue tracking, and analysis of repeat surveys on an east-west section off Charleston, South Carolina, several scientific studies were completed and published. In the field of tides, work in the Gulf of Mexico examined the effects of filling and drainage of that broad, shallow basin from its restricted channels. Two phenomena investigated are the loop current in the Gulf of Mexico and the Antilles Current. The objective of the study is to understand the mechanism for change to permit prediction of the behavior of both the Antilles Current flowing north from the Bahamas and the Florida Current.

Another study was begun to use bathythermograph observations to optimize oil tanker transit times between Gulf and northeast ports by identifying the core of the Gulf Stream. This also has potential for use in other streams, particularly on routes to the Persian Gulf.

Studies in marine morphology were conducted to interpret the evolution of the ocean basins and margins for gaining ability for both predicting their contribution to marine hazard and for economic exploitation.

Accomplishments of the last year include major progress in bathymetric mapping of the Chesapeake Bay, publication of a bathymetric survey in the Upper Mantle Project off the coast of California, an east-west profile across the southern Pacific yielding new information on the evolution of the area. Surveys of a previously unknown deep-sea channel south of the Aleutians supports recent hypotheses on sediment deposits in the Northeast Pacific.

In marine geophysics, research has been focused on determination of the structure and evolution of ocean basins and the continent-ocean basin junction (continental drift), basing interpretations on seismic, magnetic, gravity and heat flow data. The research reveals a series of rigid plates, bounded by narrow zones of high sensitivity where sea floor is created and destroyed where plates are shifting with respect to each other. Thus, the sea floor is conceived as continually renewed, and mobile with respect to the underlying mantle.

Research in geotectonics concerns structure of global features of the earth, the "jigsaw fit" of the edges of the continents. A computer-evaluated reconstruction of the Australia-Antarctica continents shows a high probability that the two were once joined.

An international field experiment, the Atlantic Tradewinds Expedition 1969 (ATEX), was conducted east of Barbados. The DISCOVERER, two West German ships, METEOR and PLANET, and the British survey ship, HYDRA, formed a triangle of 400 n.m. on each side, and drifted with the Atlantic tradewinds for eighteen days, making intense meteorological and geophysical soundings to provide information on variations in the tradewinds, sea-air interaction, and salinity-temperature-depth profiles of the ocean.

Storm surge research is being conducted to provide means of predicting the severity and duration of high water associated with marine storms for storm warning

services in coastal areas. In fiscal 1969, studies for the Eastern Seaboard have progressed for the case of direct and angular approach to the coastline.

Tsunami research continued in Hawaii with the construction of numerical models of the hydrodynamics of Hilo Bay and other bays in the Hawaiian Islands for prediction of tsunami impact. These models have favorably compared with measurements conducted in the field.

Results in ocean basin studies in the Pacific include publication of investigations of geophysical characteristics of Aleutian fracture zones, the SEAMAP deep-sea channel, the Cobb Seamount and initial results of the GLOBAL expedition.

TELECOMMUNICATION SCIENCES

Studies on navigation and communication systems have been conducted for the FAA which permit estimates of gross transmission and system performance characteristics required for design of more reliable systems to cope with rapidly increasing air traffic density. In addition, specific studies of required performance of Air Traffic Control communication systems have been made.

On July 1, 1968, the Telecommunications Disturbance Forecast Center which had been operated for many years by ESSA and its antecedents at Ft. Belvoir, Virginia, was replaced by a real time system which uses a time-share computer for forecasting the probability, time of occurrence, duration and magnitude of short wave fadeouts, polar cap absorption events, and magnetic storms and their effects on telecommunication systems. The new service is based in Boulder, Colorado, and it is possible for users of the service throughout the country to query the computer directly. The military, NASA, and Voice of America are major users at this time.

A mathematical model has been developed which describes the scattering of radio waves by precipitation in clouds and predicts the resulting interference between satellite and terrestrial telecommunication systems sharing the same radio frequency. This will be the subject of a large experimental program which is in the planning stage.

In a program under the auspices of the Department of Transportation, high quality television and other broadband communication signals were coupled to a moving vehicle in ITS experiments by surface waves guided along a dielectric-sheathed transmission line known as a Goubau line. Since there is no appreciable radiation and associated interference from such a line, it fulfills the principal objective of providing non-radiation wideband communications to high-speed ground vehicles.

A technique has been developed for laboratory simulation of the performance of high frequency radio channels. The equipment simulates propagation effects on the signal, and the effects of atmospheric radio noise. It permits communication equipment to be tested in the laboratory, thus minimizing the need for expensive field testing.

AERONOMY AND SPACE SCIENCES

Ionospheric turbulence can provide modes of radio communication between points on the earth by scatter propagation, or on the other hand, can seriously affect or diminish communications (radar clutter) with space or space vehicles. Recently, a plasma turbulence theory has been developed to the point where ionospheric turbulence can be understood and its effect on radio and radar predicted. Application of this theory has recently provided the first realistic explanation of the intensities of primary equatorial E-layer irregularities. Turbulence studies have been initiated to explain the spectral widths and anomalous shifts observed in radar returns from these irregularities. If properly understood, these spectral quantities will provide information about ionospheric conditions such as drift motions and electric fields.

In association with the theoretical studies, plasma waves and turbulence have been studied experimentally. Laboratory devices simulate plasma wave and turbulence processes that are suspected or known to exist in the ionosphere with the advantage of laboratory control. The relation between diffusion coefficients and correlations of density fluctuations provides a unique and powerful method for measuring diffusion coefficients in a plasma. This method has been developed and proven in the Aeronomy Laboratory for a quiescent plasma in the absence of a magnetic field.

The reaction rate constants measured by AL have turned out to be indispensable in understanding the extent and loss rate of ionization in re-entry vehicle wakes. The Advanced Research Projects Agency is now using these measurements to gain further understanding of the wake behavior and with a hope of acquiring some control over it.

The initiation of the new series of data reports dealing with Upper Atmosphere Geophysics in FY 1969 has met with wide acceptance in the solar-terrestrial scientific community. At the 1969 London meeting of the Inter-Union Commission on Solar-Terrestrial Physics the following Working Group Recommendation was made: "commends World Data Center A (Upper Atmosphere Geophysics) for their efforts in producing the IER-FB Solar-Geophysical Data reports and the UAG reports (particularly UAG-5 on the solar event of May 1967) and *urges* other data centers to adopt similar methods of data synthesis and dissemination."

Operation of a riometer network in Alaska, and the Antarctic, has continued with emphasis on the several polar cap absorption events that have occurred during

the past year. Seven Arcas II rockets, containing payloads developed by the Space Disturbances Laboratory were flown from Ft. Churchill during polar cap absorption events to measure the electron density and proton flux during severe communications black-outs that such disturbances create. The scientists working on the project are attempting to determine from the data the effective recombination coefficient under a variety of conditions, and to assess a number of atmospheric parameters which are believed to be important in controlling electron loss processes in the D-region. These rocket experiments are a cooperative research effort with the Canadians who supplied the Arcas rockets and the launch facilities at Ft. Churchill.

The services of the Space Disturbance Forecast Center (SDFC) of the Space Disturbances Laboratory are being improved and expanded through developments on several fronts. Forecasts and alerts of solar activity and its effects, ranging from radiation hazard in space to disturbances on high-frequency communication circuits and electrical power transmission lines, are currently being improved through a broadened data acquisition base and better data handling techniques. Better techniques are being developed for disseminating data and forecast and warning messages with a greater degree of tailoring to best serve individual customer interests. A time-share computer, with an array of other computers for switching and data processing, enable the Center to cope with the rapidly increasing data flow on a time scale required for the forecasting and alerting mission. Not only are increased data becoming available from ground systems such as the SDL-Boulder Monitoring System and the Alaskan Proton Monitoring System, but the flow of data from the many satellites and deep space probes is also increasing.

ATMOSPHERIC SCIENCES

Use of optical, submillimeter, and millimeter waves for remote sensing of atmospheric gases and pollutants, and for telecommunications applications in the atmosphere, requires knowledge of their attenuation characteristics. WPL has recently completed compilation of all details of water vapor absorption from the near infrared to the limit of the absorption spectrum at 1.35 cm wavelength. Theoretical computations of the strength of individual absorption lines have been shown to be accurate to within a few tenths of a percent.

A technique and instrumentation for direct measurement of evaporation from lakes and reservoirs has been developed by WPL. The instrument, which employs a microwave refractometer and sonic anemometer, was used to assist the U.S. Bureau of Reclamation in measuring the effectiveness of monomolecular layers in reducing the evaporation from a reservoir. In parallel, an optical/microwave instrument was developed to measure atmospheric water vapor remotely over paths up to 10 km or more in length.

A theoretical study of the potential of applying acoustic probing techniques to measure such meteorological variables as turbulence, and profiles of temperature, humidity, and wind velocity was completed and published by WPL. An experimental program in this field was initiated, and first field tests will be carried out in cooperation with an Australian team of scientists in September 1969. This technique is expected to be important to short-range weather forecasting for air pollution, aviation, and missile launch operations.

Extended experimental prediction experiments have been performed globally, in the southern hemisphere, and in tropical regions. They suggest the theoretical limit of atmospheric predictability to be at least three weeks and that several parameters thought essential for an initial description of the state of the atmosphere may in fact be redundant. Also the significance of large scale sea surface temperature anomalies on mid-latitude circulation was established as well as was the interhemisphere atmospheric coupling for forecast spans between one and two weeks. In addition, definitive studies were completed by GFDL on the atmospheric kinetic energy spectrum derived from 10 years of data, and on the water balance over North America, the Gulf of Mexico, and the Caribbean Sea for a five year period.

Cooperation continues between NSSL, U.S. Air Force, and the Canadian Research Council on obtaining flight data on turbulence in and around thunderstorms. These data are contributing substantially to improved understanding of aircraft hazards in the vicinity of severe local storms.

Research in the field of weather modification by APCL centered about the problems of redistribution of the precipitation from Great Lake Snowstorms, of hail suppression, and of weather and climate modification. The first seeding field experiment directed toward modification of Great Lake snowstorms was carried out during the winter of 1968-1969, in the region of Lake Erie. While the weather patterns during this period produced only two testing opportunities, much experience was obtained regarding the manipulation of mesoscale cloud systems over the lake. Analysis following treatment of these weak lake-storm clouds indicate that heavy snowfall bands may be diminished in intensity by seeding.

In the area of tropical cloud modification, the results of a field seeding experiment were closely compared with the numerical simulation of the seeding effect. It was found that massive seeding of a particular class of tropical cumulus resulted in enhanced cloud development. Measurements using calibrated radar produced evidence of a significant influence on precipitation from the seeded clouds.

A numerical model has been developed by NHRL which simulates many features of the evolution and decay of hurricanes. This model is being used to simulate certain aspects of hurricane modification experiments and to obtain data useful in improving the design of the field experiments in modification. It also provides a better understanding of the physics of hurricanes and especially their energy processes. In addition, a numerical weather prediction model has been developed for testing during the 1969 hurricane season. This model shows promise of improving both the prediction of hurricane movements and intensity in areas where sufficient data are available for making the computations.

The effect of cities on the airflow across them has been continued by ARL, in connection with air pollution research. These studies have resulted in knowledge of the influence of moderate sized urban areas on the 3-dimensional low level air flow at night.

Meteorological studies in connection with nuclear reactors has resulted in a 445 page volume, *Meteorology and Atomic Energy-1968*. This book will serve as a guide, handbook, and textbook in atmospheric transport and diffusion process.

PATENT OFFICE

Functions

The Patent Office administers the patent laws enacted by the Congress in accordance with Article 1, Section 8, of the Constitution, and the Federal trademark laws. In discharging its duties relating to patents, the Office examines applications and grants patents when applicants are entitled to them under the law, publishes and disseminates patent information, records assignments of patents, maintains search files of U.S. and foreign patents and a Patent Search Center for public use, and supplies copies of patents and official records to the public. Similar functions are performed relating to trademarks.

Patent Examining Operations

During fiscal year 1969, 96,821 patent applications were filed, compared with 90,663 filed in fiscal 1968. Disposals amounted to 102,070, compared to 101,512 in the prior year. At the end of the fiscal year, pending applications totaled 183,624, a reduction of 6,285. A total of 62,238 patents were granted compared to 61,851 in the previous year.

As a service to inventors, the Office instituted the "Disclosure Document Program" under which the Office will accept and preserve for two years documents which may be used as evidence of the dates of conception of inventions.

The Rules of Practice were amended during the year to provide a new procedure to expedite the issuance of certificates of correction and reduce printing costs. Also, a weekly listing of patents for which certificates of correction have been issued is now published in the Patent Office's *Official Gazette.*

Guidelines were published for incorporating essential material into a patent application by reference to a U.S. patent or an allowed U.S. application; this will result in a saving of printing costs for the Patent Office and a reduction in the issue fee for inventors.

As a service to the public, the Office instituted the practice of listing at the end of the specification of each patent the locations in the U.S. patent classification system of all the places into which the patent is cross-referenced at the time of issue. Also, the international patent classification is included in the heading.

The rules will be amended to require the applicant or his attorney to designate the assignee of a patent at the time of issue in order that this information may be printed on the patent and eliminate the need for a title search.

It is also planned to permit the use of a declaration in lieu of an oath in connection with any document to be filed in the Patent Office with the exception of testimony in interferences.

To expedite the prosecution of applications and strengthen the presumption of validity of issued patents, the Patent Office is considering the adoption of a new rule which will require the applicant to submit a patentability brief before examination of his application is undertaken. The brief would include an identification of all art that was specifically considered in support of patentability of his claims.

Patent Services

The new microform patent copy fulfillment system is approximately 95 percent implemented with full implementation anticipated during the first half of fiscal 1970. With the installation of additional equipment next year, it is expected that the number of prints furnished through this system will increase by 10 million prints a year.

The opening of the Attorney's Room and the moving of the patented files to the new location of the Patent Office at Crystal Plaza, Arlington, Virginia, has been a major improvement in serving the public and the Office.

New reader-printers have been installed for public use in the Public Search Center so that users may obtain a printed copy, within 10 seconds, of any microfilm being read.

The Search Center will obtain microfilm copies of foreign patents to replace bound and unbound copies now being housed in the Office.

The Application Branch will begin using microfiche for the microfilming of incoming applications. The use of microfiche instead of roll film will solve the problem of recalling an application document from an examiner, will promote more rapid and efficient service to the public, and will create a historical and security file.

Patent Documentation

One patent subject class was abolished involving 8,895 original patents and 2,912 cross-reference patents; 4 new classes were established with 595 subclasses involving 10,933 original patents, 12,359 cross-reference patents, and 37,000 foreign patents. A total of 944 miscellaneous subclasses was established involving 15,937 original patents and 11,200 cross-reference patents. Miscellaneous patents transferred totaled 8,640.

Patent Appeals and Interferences

The Board of Appeals received 8,125 appeals and reconsiderations as compared with 7,775 in fiscal 1968. It handed down 2,686 decisions, dismissed 1,813 appeals, while appellants withdrew 3,363. Appeals on hand at the end of the year totaled 3,495, compared with 3,190 at the end of the previous year. With the reduction of some extra duties, the Board projects an appeal docket of less than 3,000 at the end of next year.

The number of interferences pending continued to decline, although at a reduced rate. The total pending at the end of the fiscal year was 813, a reduction of 69 as compared with a decrease of over 200 in fiscal years 1967 and 1968.

Trademark Examining Operation

The volume of activity in trademark examining has shown a steady increase. There were 31,268 applications for registration filed during the year, the largest number ever filed in a single year.

Disposals of applications for registration totaled 27,740, including 21,833 applications which matured into registration, and 5,907 applications which were abandoned. There were 20,306 registrations issued during the year. Applications on file on June 30 were 43,484 as compared to 39,019 the previous year.

A total of 532 cases were decided by the Trademark Trial and Appeal Board after a hearing, 395 of which were adversary proceedings and 137 ex parte appeals. In addition, 1,067 adversary proceedings were finally disposed of during the interlocutory stages and 118 ex parte appeals prior to a hearing. There were 1,551 adversary proceedings and 114 ex parte appeals pending at the close of the fiscal year.

Patent Office Academy

A total of 171 patent examiners participated in the basic academy training program and 163 graduated from the advanced program. Six foreign guests participated in the basic program and 3 in the advanced program. Other non-Patent Office participants included 4 in the basic and 3 in the advanced programs.

International Activity

A final draft of the proposed Patent Cooperation Treaty was produced after two years of consideration and will be considered by a diplomatic conference of member states of the Paris Union in the Spring of 1970.

The second draft of this treaty, which is designed to simplify the procedures for protection of inventions in international commerce, was released by the United International Bureau for the Protection of Intellectual Property (BIRPI) on July 15, 1968. The U. S. Patent Office published the draft in its Official Gazette and conducted briefing conferences with business and the patent bar in 14 major cities of the United States. Comments received as a result of these meetings and other contacts with patent and industry groups were taken into account when the U. S. delegation prepared for a second meeting of all Paris Union countries in Geneva in December 1968. The result of this meeting and some subsequent smaller meetings of consultants from major nations resulted in the final draft.

In view of the extent of interest in the proposed treaty in the United States, Senator Fulbright, at the request of the Administration, introduced on April 13, 1969, a joint resolution (S.J. Res. 90) which would enable the United States to organize and hold the diplomatic conference in Washington.

Among other international patent activities, bilateral search exchange programs and joint studies were continued with the patent offices of France, Federal Republic of Germany, Czechoslovakia, Japan, the Philippines, Sweden, and Switzerland.

The Stockholm Act of the Paris Convention, and a convention establishing the World Intellectual Property Organization (WIPO), signed July 14, 1967, were sub-

mitted by President Nixon to the Senate on March 12, 1969. The principal objectives of these conventions are the administrative reorganization of BIRPI and the creation of the new intergovernmental agency, WIPO, to promote the protection of intellectual property throughout the world and to insure administrative cooperation among the several organizations concerned with intellectual property rights.

On October 8, 1968, a convention to establish an international classification for designs was signed by 22 countries, including the United States. The Patent Office for the past several years has participated with other nations in establishing an international schedule of design classifications which was adopted by this convention.

Under the Foreign Professional Training Program, initiated in fiscal year 1968, representatives of the patent offices of Canada, the Federal Republic of Germany, and Japan visited the U. S. Patent Office. In addition, an international patent specialist from the U. S. office was temporarily detailed to BIRPI.

In furtherance of the broad objective of U. S. foreign policy to promote the development of improved patent and trademark systems internationally, the Patent Office, in cooperation with BIRPI, provided in-house training for government industrial property officials of the developing countries of Thailand, the Republic of Korea, and Libya.

The Office participated in joint meetings of the Paris Union and the council of Europe countries to transfer administration of the International Patent Classification from the Council of Europe to BIRPI and to provide a broader administrative framework from the standpoint of participating countries.

In the field of trademarks, the Patent Office participated in discussions with BIRPI preparatory to the convening of a working group on international trademark registration to be held in early 1970. The proposed working group will be composed of representatives of the 21 members of the existing Madrid Agreement for International Registration of Trademarks and of interested non-adhering countries, including the United States.

After approximately one year of experience in using the international classification as a secondary system in the U. S. Patent Office, a public hearing was held to consider its adoption as the primary system of classification in the United States. A final decision has been deferred pending the completion of further studies.

Patent Legislation

Senator McClellan introduced S.3892 on February 28, 1969. He indicated that the bill was intended to institute desirable but modest innovations in the patent laws. He noted that the principal goals of the President's Commission on the Patent System, which made its report in November 1966, 1966, could be achieved without major revisions in the patent system.

In other matters, a comprehensive study concerning ways in which protection might be provided for computer programs ("software") was announced in October of 1968. Views of interested persons were solicited and a number of recommendations were received.

The Office is studying legislation which would permit applications for registration of trademarks to be filed on the basis of an intent to use the mark in commerce. Bills for this purpose have been introduced for some years.

There has been much concern and discussion, both in the public and private sectors, over the requirement for obtaining an export license when patent applications and related papers are filed in foreign countries. The Patent Office initiated a number of meetings with other interested Government agencies to determine ways in which these licensing requirements might be simplified. As a result, regulations of the Bureau of International Commerce concerning the export of technical data have been amended. They no longer require an export license previously required for certain countries when an application for the same invention has been filed in an "early publication country."

Research and Development

Research and development work continued on both U. S. Patent Office and International Cooperation in Information Retrieval Among Examining Patent Offices (ICIREPAT)mechanized information retrieval projects.

The method of composing the Weekly Index of Patentees was changed to achieve substantial cost reductions. It is now prepared through electronic composition using magnetic computer tape as the input to the Government Printing Office's Linotron photocomposing machine, rather than using the historic method of hot metal typesetting composition.

One prototype semi-automatic aperture card search reader was delivered by the contractor, and preliminary evaluation indicated substantial reader system improvements for handling the microform aperture cards to be used in the Public Search Center and by the Examining Corps when the new microform system becomes operational in the Office.

The system for collecting patent issue fees was improved, eliminating the complicated system of fee estimating prior to determination of actual costs. This will result in an increase of approximately $240,000 in annual revenue and a decrease in costs.

General

The Office received $25,721,864 in fees and deposits from all sources. Refund of $144,263 and a net increase

of $121,909 in the deposit fund for unapplied receipts resulted in a net income of $25,455,692. This exceeded the previous record-high amount for fiscal 1968. Net income for 1969 was equivalent to 60 percent of operating costs.

NATIONAL BUREAU OF STANDARDS

Functions

The National Bureau of Standards is the Nation's central measurement laboratory. Its work covers the entire range of the physical and engineering sciences. The Bureau is charged by the Secretary of Commerce to serve as the focal point in the Federal Government for assuring the maximum application of the physical and engineering sciences to the advancement of technology in industry and commerce.

Office of the Associate Director for Information Programs Established

The major organizational units at NBS that gather, analyze, and distribute technical information have been combined under an Associate Director for Information Programs. The new arrangement brings together related information activities that were previously managed independently. It permits improved coordination, common policy interpretation, and centralized and coordinated program planning, budgeting, and evaluation.

The information activities of the new office range from those of the Bureau's library, which primarily serves Bureau employees, to those of the Clearinghouse for Federal Scientific and Technical Information, which is responsible for disseminating technical information generated throughout the Federal Government.

Advanced-Research Teamwork With Universities

Major moves toward increased cooperation with the Washington area's institutions of higher learning were made when the National Bureau of Standards entered into agreements with the University of Maryland and George Washington University to facilitate joint efforts in advanced scientific research. The agreements are a continuation of NBS efforts in the field of University-Government cooperation consistent with a White House memorandum in 1965 which encouraged sharing of laboratory facilities. In particular, these agreements are designed to encourage contributions to the Nation's research and development from young scientists early in their careers.

The participating universities and NBS are providing for greater use of the Bureau's personnel and facilities in furthering graduate training and research, focusing university competence more strongly on work geared to national goals, and establishing machinery for close collaboration between each university and NBS in selected joint programs. Under the agreements, every effort is being made to attract distinguished scientists to temporary positions furthering the going projects, either at the Bureau or at the universities. University-related activities engaged in by NBS staff are considered part of the Bureau's normal activities, and activities of university staff and students on joint projects at NBS are regarded as part of normal university responsibilities. Supplementing the general agreement between the University of Maryland and NBS, a specific memorandum of understanding has been adopted, providing for a Cooperative Program for Advanced Materials Research, teaming the Bureau's Institute for Materials Research with the University of Maryland's Center of Materials Research.

Transfer of NBS-GSA Test Development Division

For several years NBS has operated a testing laboratory for the General Services Administration to develop new test methods and run tests on specific commodities. In keeping with the general NBS policy of developing and disseminating measurement expertise as widely as possible throughout other government agencies and private enterprise, the laboratory has been strengthened and transferred to the General Services Administration. The new location of the laboratory is appropriate, since GSA has responsibility for qualified product lists and has the legislative authority to run a laboratory for testing products against standards.

Metric System Study

Since the August 9, 1969, enactment of Public Law 90-472 authorizing a Department of Commerce appraisal of "the advantages and disadvantages of increased use of the metric system in the United States," the Bureau's exploration of the question in cooperation with other groups has generated confidence that the study will be concluded on time and that it will contain a realistic cost estimate for any major U.S. changeover to the metric system.

The basis for a realistic estimate has been laid by looking at potential costs as they would accrue if metric measurements were to be applied to new or redesigned

products, stressing the concept of planning a transition–if there is to be a transition–at an optimal rate, without going back and changing all the drawings that are in the files. This method, it is felt, avoids the exaggerations and "astronomical" figures which would result from a doctrinaire approach based on all-or-nothing plunge into metric measures throughout U.S. science and technology.

Specialists conducting the NBS study have relied on the invaluable orientation guide devised by the American National Standards Institute for companies making metric studies. In this approach costs are being estimted on the assumption that metric specifications will be used only for new, uniquely designed major components or end products requiring new special tooling–only after new metric standard parts and materials are readily available at reasonable cost. This can be accomplished on an optimum schedule as present product designs become obsolete on a timetable compatible with marketplace requirements and normal tool obsolescence. In some areas–for example, the railroad and oilfield industries–changes in existing equipment do not appear to be warranted.

Several questionnaires are being developed by NBS to aid in the study. Companies which have already looked closely into the advantages and disadvantages of increased metric use are being queried, as are other companies which have not attacked the problem in detail. A general questionnaire will be sent to both groups and their answers will be compared. Large Federal agencies are cooperating with the Bureau in gauging the probable effects that "going metric" would have on their operations. The Department of Defense, in particular, has a study team working intensively on the question.

Great Britain's experience, and that of other non-metric countries undertaking a changeover, is being analyzed in the NBS study to see what the United States can learn from their accomplishments and mistakes. With regard to the U.S. position in world trade, an in-depth appraisal of the probable effects of metrication is under way.

Thus the NBS Study Group expects to present to the Metric System Advisory Panel (recently appointed by the Secretary) a comprehensive report on both domestic and international implications of the decision–whether positive or negative–which the country will be making on proposed increased use of the metric system.

REPRESENTATIVE TECHNICAL ACTIVITIES

High Accuracy Laser Length Standard

Since the invention of lasers it has been assumed that they would eventually lead to an accurate standard of length. So far the greatest problem in using them in this application has been the difficulty in keeping the wavelength of light that they put out constant. Now NBS scientists have developed a cell containing methane vapor which absorbs the laser's light if it strays as little as one part in a billion from the desired frequency. Keeping the laser tuned to give maximum light transmission through the methane cell assures that the wavelength of light is highly stable. Such highly stabilized lasers may be used as the basis of a new definition of the meter which would be 300 times more accurate than the present international definition based on the wavelength of light given off by krypton gas.

More Precise Voltage Standards

NBS scientists have developed instrumentation to compare electrical voltages using new solid state devices known as Josephson junctions. The voltage produced by these junctions is precisely related to the radio frequency applied to them. Because radio frequency can be measured with very great accuracy, the Josephson apparatus promises a significant improvement in measurements of electrical voltage.

Super-Purity Aluminum

A cooperative project between NBS and industry has produced the purest aluminum known. Design and construction of high-power aluminum magnets which operate at cryogenic temperatures has been hindered in the past by lack of aluminum of sufficient purity. The new material is also expected to be valuable for physical and mechanical property measurements and promises a variety of commercial application.

Apollo Nine Cameras Calibrated

The cameras used to photograph the moon on the Apollo Nine mission were calibrated by NBS. Four cameras, each utilizing a different spectral region, were mounted in the main hatch window. Conventional black-and-white film, infrared film, and false color film were used. The cameras were tested with films identical to those used on the flight. NBS measured the lens characteristics with and without filters in place and the lenses were evaluated by photographic, photoelectric, and visual methods. The cameras provided photographs for use in detailed mapping of the surface of the moon.

Recommendations on Archival Microfilm

Following several years of NBS research on the causes and prevention of blemishes on microfilm, the results of a large scale inspection of government microfilms were published, and final recommendations for the prevention of such blemishes were presented to the National Microfilm Association and the Archivist of the United States. For archival purposes, the importance of

specifying storage and handling conditions as well as the characteristics of the film was emphasized.

Hearing Aids Circular Revised

NBS Circular 534, "Hearing Aids" (1953) has been completely revised and brought up to date. This publication is directed toward the consumer and discusses sound and hearing, and the general properties, selection, and care of hearing aids. It also lists the principal hearing centers in the United States, at which assistance to prospective users of hearing aids is available.

Apollo Eleven Lunar Range Experiment

NBS cooperated with scientists from the University of Maryland, Goddard Space Flight Center, Princeton University, Wesleyan University, and other institutions in preparing the optical retroreflector array that was carried to the moon on Apollo Eleven. The round trip light travel time from the earth to the reflectors and back will be measured using short laser pulses. The accuracy of resulting distance measurements is expected to be 15 cm or better. One application of the range data will be to determine the lunar orbit and radius to much higher accuracy than they are now known. Improved information will also be obtained on the wobble of the earth about its rotation axis, the rotation of the earth, and the difference in longitude between widely separated observing stations. Such geophysical information should help in understanding the interaction between the core and the mantle of the earth, and should provide a direct test of whether the large scale crustal movements predicted by recent theories of ocean floor spreading and continental drift are actually taking place at present.

New Dental Materials and Techniques

The NBS dental laboratory does a variety of studies on dental materials, largely for the military medical services. Several interesting findings were reported during the year. One of the unsolved problems of dentistry is the lack of adhesion between teeth and fillings. Materials tend to creep between the filling and the tooth and cause secondary cavities. NBS scientists have found that treating the tooth with certain heavy metal salts improved the adhesion of resin fillings substantially. Another problem is to find filling material which shows up in x-rays but resembles tooth material enough to be used in front teeth. NBS has produced a material which seems to fill the requirements. It has been used in 110 restorations which will be watched to determine how well the material holds up. Another new filling material developed at NBS has improved physical properties. This new silver-tin-mercury alloy, similar to traditional filling material, is made with spherical alloy particles rather than the irregularly-shaped ones in conventional material. The new filling is stronger and more durable and it packs with less pressure, so it is more comfortable and convenient for both the dentist and the patient.

New Biomedical Standard Materials

The precise measurements made in clinical laboratories are among the most exacting, and certainly among the most important in all of science. NBS has added to its line of standard reference materials four new ones which will serve as calibration points for checking the accuracy of a variety of clinical measurements and tests. Urea, uric acid, creatinine, and calcium carbonate join cholesterol which was made available earlier.

New State Standards

During the year seven additional States received new State weights and measures standards. The seven included Georgia, Hawaii, Kentucky, Missouri, North Carolina, Pennsylvania, and Wisconsin. To date, the Bureau has provided new equipment to 30 States. Manufacture of additional sets of precise physical standards and instruments is continuing and the ultimate goal is the updating of all State weights and measures laboratories.

New Package Simplification Standards

A voluntary standard to simplify the variety of quantities in packaging for salt was approved and published to join the standards for 22 other products which have already been worked out under the fair packaging and labeling law. Work on four others was initiated—for toothpaste, instant nonfat milk, instant mashed potatoes, and green olives.

Automotive Safety

An agreement between the Department of Commerce and the Department of Transportation was extended to continue the National Bureau of Standards Office of Vehicle Systems Research (OVSR) as an objective third-party resource to the National Highway Safety Bureau.

One of OVSR's major activities during the year was working on a uniform quality-grading system for tires to allow for an informed choice by consumers. Objectives are to establish standard test methods for several important tire properties, define quality levels for each property, and develop a means of conveying the information to the consumer.

Broader Protection from Flammable Fabrics

Procedures for carrying out the Secretary's responsibilities under new and amended sections of the Flammable Fabrics Act were published in the *Federal*

Register of October 1, 1968. They included rules for developing flammability standards by a four-step process.

The newly established NBS Fabric Flammability Section initiated research on the transfer of heat from burning fabrics and related materials. The first phase of this study is focused on the tendency of some heated materials to melt onto the skin, causing more severe burns than those produced by other types of material.

After analyzing data from Consumers Union, the Department of Health, Education and Welfare, and other sources, NBS recommended to the Assistant Secretary of Commerce for Science and Technology that he issue findings that there may be a need for new or amended standards for both clothing and carpets and rugs. Accordingly, on October 23, 1968, notice to this effect was published in the *Federal Register.*

The National Advisory Committee for the Flammable Fabrics Act began functioning on January 1, 1969. The committee's 17 members—representing manufacturers, distributors, and the consuming public—were selected by the Secretary of Commerce from among more than 50 nominations. The committee is expected to be particularly helpful in giving guidance on priorities for efforts both in test-method development and in research.

Wind Effects on Buildings

The effects of wind on buildings is the subject of a study jointly sponsored by the Environmental Science Services Administration and NBS. This problem has assumed great importance with the recent trend toward lighter, more slender buildings and larger window panels. U. S. Weather Bureau records indicate the average yearly damage to structures by wind in the continental United States is approximately $600 million. In two years on record the damage exceeded one billion dollars. The study will ultimately result in improved design techniques for structures exposed to wind.

Maritime Consolidation Centers

In response to the U.S. Maritime Administration, the Bureau investigated the advantages of strategically locating centers where goods for export and import could be consolidated and loaded in containers. Such centers would be established at intermediate points between importers or exporters of commodities. Cargo would accumulate until a full container could be shipped. NBS analysts have developed a model for evaluating the costs and benefits which the shipping industry would derive from the establishment of such centers.

Urban Studies Projects

NBS has embarked on a cooperative project with the International City Managers' Association, Fels Institute of the University of Pennsylvania and the Department of Housing and Urban Development to determine the applicability of systems analysis and operations research techniques to the resolution of urban problems. Numerous cities throughout the country have begun to apply systems techniques to the resolution of varying types of urban problems. During the year NBS acted as "technical coach" to the city staff of East Lansing, Michigan. A model was constructed which enabled the city staff to determine the optimal number and location of fire stations necessary to protect the city now and in the future.

Shielding for Civil Defense

Changes in the methods used by the Office of Civil Defense (OCD) to calculate shielding properties of structures against fallout, which were recommended by NBS, have been adopted by OCD. Recommendations on procedures for calculating protection from nuclear weapons are being generated by NBS.

Computer Controlled Research Microscope

NBS computer experts have built, in cooperation with NIH, a computer controlled research microscope. The computer can position a slide in the optical path of the microscope in three dimensions, thus automatically locating and relocating areas to be studied and automatically focusing at different depths within the specimen. The computer also controls the color and brightness of the light used to view the specimen in order to get the best definition of the structures being studied.

New Computer Standards

The Center for Computer Science and Technology prepared for the Secretary's signature the implementation letter for the first Federal ADP (automatic data processing) standard. This and later standards appeared as a new publication series, *Federal Information Processing Standards Publications.* These constitute an important new contribution to efficient use of computer hardware, software and personnel throughout the Government's three thousand installations. The Department has this responsibility under Public Law 89-306, the Brooks Bill.

OFFICE OF STATE TECHNICAL SERVICES

Functions

The objective of the State Technical Services Act of 1965 is to raise the technological level of American business, commerce and industry; thereby assisting in the continued development of business, products and services; making American products more competitive in foreign and domestic markets; and providing new employment opportunities in a stronger and more prosperous American economy. The Act is designed to assist the States in setting up programs for introducing available technology more effectively into the over-all management and direction of business and industry as well as into their production lines, processes and services.

The key to the State Technical Services Act is local responsibility for providing leadership, initiative, resources, and participation. Federal funds are furnished on a matching basis to stimulate and encourage the establishment of technical services specifically designed to meet the needs of business, commerce and industry for continued development and growth of the local economy. The universities and colleges, State agencies and other qualified institutions and organizations in the States play an important role in the action phase of the program by providing the technical services authorized by the Act.

To participate in the program, each State designates an agency or institution to develop a five-year plan describing the technological and economic conditions of the State and a detailed annual program describing the specific technical services projects to be conducted. The designated agency also coordinates and administers the annual technical services programs for the State. Typical State technical services programs include: field services, information services, referral services, conferences and demonstrations; all dealing in the technology particularly applicable to the needs of local industry. Plans and programs are approved by the Office of State Technical Services, and program grants must be matched at least dollar for dollar by State or other sources of non-Federal funds. The maximum amount of matching funds for which each State is eligible is determined on the basis of Regulations published in the Federal Register.

In addition to the support given to State programs, the Act also authorizes matching grants to be made directly to qualified institutions, organizations or agencies for programs that are determined to be of special merit or that are otherwise necessary to accomplish the purposes of the Act. Finally, the Office of State Technical Services is authorized to assist the State designated agencies by providing reference services that they may use to obtain scientific, technical and engineering information from sources outside the State they serve.

The main function of the Office of State Technical Services (OSTS) is to administer and coordinate the State technical services program at the national level. The work includes advising and assisting the States in establishing programs that serve needs at the State and local level and programing the appropriated funds in the most effective and equitable manner. The Congress appropriated $5.3 million in fiscal year 1969 for State Technical Services programs.

Distribution of Funds

Since the appropriation for fiscal year 1969 was $1.2 million less than the previous year, an administrative decision was made to suspend special merit grants and reduce funds for reference services to a minimum. This action was necessary to avoid reductions in State program grants. Planning grants were not authorized beyond fiscal year 1968.

Table I illustrates the distribution of funds during fiscal year 1969 for program operations.

Table I.–OSTS OBLIGATIONS, FY 1969

State Program Grants	$4,874,000
Special Program Grants	-------
Reference Services	107,000
Administration	252,000
Program Evaluation	56,000
Public Evaluation Committee	7,000
Other	2,000
Unobligated	2,000
Total	$5,300,000

State Program Grants

Forty-seven States, the District of Columbia, Guam, Puerto Rico, the Virgin Islands, and the New England Region were awarded matching grants for technical services programs in fiscal year 1969. These 52 grants totaled $4,874,000 for an average of approximately $94,000. All of the grants were matched with State or other non-Federal funds amounting to as much or more than the amount of the grant.

Table II shows the actual grant amounts awarded for State programs during fiscal year 1969.

Special Merit Program

Although no new grants were awarded for Special Merit Programs in fiscal year 1969, 26 programs approved in previous years were still in operation during this period. Of these 26 continuing programs, 10 were approved in fiscal year 1967 and 16 were approved in fiscal year 1968.

Table II.–STATE PROGRAM GRANTS

	1969
Alabama	$90,439
Alaska	45,700
Arizona	60,900
Arkansas	69,928
California	281,362
Colorado	68,160
Connecticut	78,500
Delaware	51,200
District of Columbia	53,188
Florida	-------
Georgia	107,020
Guam	38,000
Hawaii	55,525
Idaho	46,700
Illinois	200,389
Indiana	107,600
Iowa	85,700
Kansas	74,000
Kentucky	90,821
Louisiana	90,950
Maine	57,599
Maryland	-------
Massachusetts	119,571
Michigan	196,700
Minnesota	94,000
Mississippi	79,805
Missouri	108,155
Montana	54,740
Nebraska	60,000
Nevada	44,600
New Hampshire	53,813
New Jersey	129,000
New Mexico	55,200
New York	318,420
North Carolina	115,000
North Dakota	-------
Ohio	193,386
Oklahoma	76,152
Oregon	69,000
Pennsylvania	205,099
Puerto Rico	76,280
Rhode Island	55,500
South Carolina	77,052
South Dakota	47,300
Tennessee	97,000
Texas	197,515
Utah	58,811
Vermont	66,523
Virgin Islands	29,880
Virginia	107,100
Washington	86,337
West Virginia	65,200
Wisconsin	96,800
Wyoming	30,674
New England	55,706
Total	$4,874,000

Reference Services Programs

No new reference services were contracted for in fiscal year 1969. However, several contracts awarded the previous year were still in effect which resulted in two Regional Technology Transfer Seminars, the establishment of Learning Resources Information Center and an Interstate Referral Pilot Program.

Conferences and Publications

A national conference was held in Denver, Colorado, in October 1968 which was well attended by representatives from the 50 States and four other jurisdictions eligible to receive grants under the State Technical Services Act.

In addition to administrative bulletins, memoranda and announcements, the Office of State Technical Services issues a newsletter having a distribution of 2,800 copies which goes to State designated agency officials and working contacts, U.S. Government agencies, libraries, universities, associations and various publications. A report covering OSTS activities for the fiscal year is prepared and distributed annually.

Evaluation of the National Program

In addition to the evaluation by public committee required by the Act, the Office of State Technical Services contracted with A. D. Little, Inc., for a quantitative evaluation of the national program of State Technical Services. This study, completed in September 1969, will provide a basis for continuous evaluation of the program and future program improvements.

SCIENCE AND TECHNOLOGY

Summary of Employment and Financing, 1965 to 1969

	End of year employment					Obligations (in thousands)				
	1965	1966	1967	1968	1969	1965	1966	1967	1968	1969
General funds:										
Environmental Science Services Administration:										
Salaries and expenses	.....	.....	7,940	7,588	7,831	.....	.....	$102,057	$106,619	$117,801
Research and development	.....	.....	948	1,141	1,062	.....	.....	20,646	24,489	25,555
Research and development (special foreign currency program)	.....	.....	.....	.....	.....	.....	.....	781	173	296
Facilities, equipment, and construction	.....	.....	82	57	55	.....	.....	3,875	6,425	4,828
Satellite operations	.....	.....	229	299	283	.....	.....	26,785	27,153	18,727
Total, Environmental Science Services Administration	.....	.....	9,199	9,085	9,231	.....	.....	154,144	164,859	167,207
Coast and Geodetic Survey:										
Salaries and expenses	2,375	2,323	.....	.....	.....	$28,549	$29,563	.....	.....	.....
Construction of surveying ships	.....	.....	.....	.....	.....	13,972	10,760	.....	.....	.....
Construction and equipment	.....	.....	.....	.....	.....	498	529	.....	.....	.....
Total, Coast and Geodetic Survey	2,375	2,323	.....	.....	.....	43,019	40,852	.....	.....	.....
Weather Bureau:										
Salaries and expenses	5,542	5,551	.....	.....	.....	66,777	70,160	.....	.....	.....
Research and development	427	442	.....	.....	.....	11,288	11,113	.....	.....	.....
Research and development (special foreign currency program)	.....	.....	.....	.....	.....	278	121	.....	.....	.....
Establishment of meteorological facilities	56	52	.....	.....	.....	3,182	3,712	.....	.....	.....
Meteorological satellite operations	122	186	.....	.....	.....	33,829	25,412	.....	.....	.....
Total, Weather Bureau	6,147	6,231	.....	.....	.....	115,354	110,518	.....	.....	.....
Patent Office	2,603	2,584	2,732	2,794	2,698	31,433	34,392	36,989	38,713	42,500
National Bureau of Standards:										
Research and technical services	2,197	2,015	2,065	1,999	2,321	31,760	28,665	30,768	32,283	35,719
Research and technical services, (special foreign currency program)	.....	.....	.....	.....	.....	687	498	204	444	6
Plant and facilities	18	12	4	4	4	1,827	2,654	1,429	894	1,033
Construction of facilities	.....	.....	.....	.....	.....	1,509	10,970	4,236	2,996	1,333
Civilian Industrial Technology	9	6	1	1	1	347	439	155	139	27
Total, National Bureau of Standards	2,224	2,033	2,070	2,004	2,326	36,130	43,226	36,792	36,756	38,118
Office of State Technical Services	.....	14	27	24	14	.....	3,449	5,485	6,407	5,298
Total, General Funds	13,349	13,185	14,028	13,907	14,269	225,936	232,437	233,410	246,735	253,123
Total, Other Funds[1]	3,777	4,205	3,920	3,857	3,430	53,370	49,417	61,865	63,386	67,137
Total, All funds	17,126	17,390	17,948	17,764	17,699	279,306	281,854	295,275	310,121	320,260

[1] Other funds include public enterprise funds, intra-governmental funds and trust funds. Included is employment, but not funds, for allocation accounts carried in the budget schedules of other agencies. Amounts for advances and reimbursements include reimbursements between Commerce appropriation accounts as follows: 1965–$1,128,000; 1966–$1,281,000; 1967–$3,764,000; 1968–$2,540,000; 1969–$2,218,000.

COAST AND GEODETIC SURVEY

(Selected workload data)

(In thousands)

Item	Fiscal year				
	1965	1966	1967	1968	1969
OCEANOGRAPHY:					
Square nautical miles surveyed (hydrographic)	399	[1]123	24	3	18.7
Lineal miles of hydrography	48	91	40	25	[2] 52.0
Lineal nautical miles surveyed (oceanographic)	....	....	....	....	[2]101.6
GEODESY:					
Horizontal control:					
Transcontinental traverse (linear miles)	1	1	1	1	1.0
Marked stations established	1	1	1	1	0.7
Vertical control miles leveling run	8	8	10	7	6.3
NAVIGATIONAL CHART PRODUCTION:					
Nautical charts:					
Military	1,068	1,044	1,092	1,192	1,145.6
Other	1,017	1,121	1,251	1,274	1,691.8
Standard aeronautical charts:					
Military	3,647	3,143	3,194	2,186	1,211.9
Other	2,709	3,335	3,509	3,903	3,497.4
Instrument charts (radio facility and instrument approach procedure charts):					
Military	160	120	153	92	599.4
Other	22,894	25,864	22,018	29,846	29,725.0
NAVIGATIONAL CHARTS PUBLISHED:					
Nautical charts	...	...	0.4	0.5	0.5
Aeronautical charts	...	...	5.0	4.2	5.0

[1] The decommissioning of a survey ship primarily accounts for this drop from the level of the three previous years.
[2] Data not reported in prior years.

WEATHER BUREAU

(Selected workload data)

Items	Fiscal years		
	1967	1968	1969
BASIC WEATHER PRODUCTS:			
Number of scheduled surface observations	2,800,000	2,808,000	2,798,518
Number of unscheduled surface observations	673,171	1,210,974	1,308,335
Number of scheduled upper-air observations	109,000	102,420	98,550
Number of unscheduled upper-air observations	57,849	98,523	61,608
Number of scheduled radar observations	571,871	341,800	333,058
NATIONAL METEOROLOGICAL CENTER—BASIC WEATHER ANALYSES:			
Surface and upper-air analyses	33,114	33,794	34,310
NATIONAL METEOROLOGICAL CENTER—FORECAST PRODUCTS:			
Number of forecasts (all types)	74,124	75,130	76,225
NATIONAL METEOROLOGICAL CENTER—AIR POLLUTION PRODUCTS:			
Number of air pollution products	728	732	730
FORECASTS FOR AVIATION (civil and military)	366,272	1,032,280	1,153,199
PUBLIC WEATHER FORECASTS:			
Number of forecasts	1,403,210	751,820	781,392
RIVER AND FLOOD WARNINGS:			
River forecasts advisories	206,750	227,472	385,000

PATENT OFFICE

TABLE I.–SELECTED PATENTS WORKLOAD DATA

Item	Fiscal years				
	1965	1966	1967	1968	1969
Applications for patent received:					
Inventions	88,908	93,022	88,167	90,252	96,342
Plants	89	103	100	107	103
Reissuee	237	266	241	304	376
Total	89,234	93,391	88,508	90,663	96,821
Patent application disposals:[1]					
Applications allowed	69,341	64,188	65,951	72,205	72,666
Applications abandoned	32,824	26,871	30,860	29,307	29,404
Total disposals	102,165	91,059	96,811	101,512	102,070
Applications pending, June 30:					
Pre-Examination	9,800	12,940	16,298	24,949	13,663
Under Examination	197,122	196,314	184,441	164,960	170,997
Post Examination	(2)	(2)	(2)	25,095	34,182
In issue process	(2)	(2)	(2)	16,666	15,905
Total in office	[2]206,922	[2]209,254	[2]200,739	231,670	234,747
Patents granted:[3]					
Inventions	52,914	66,243	70,028	61,599	61,957
Plants	127	105	102	67	80
Reissues	204	238	180	185	201
Total	53,245	66,586	70,310	61,851	62,238

[1]Includes plant and reissue applications. [2]Excludes applications pending in post examination and in issue process. Comparable figures not collected for these items prior to 1968. [3]Includes withdrawn numbers.

TABLE II.–SELECTED TRADEMARK EXAMINING WORKLOAD DATA

Item	Fiscal years				
	1965	1966	1967	1968	1969
Applications for trademark filed:					
For registration	26,657	28,438	27,628	28,292	31,268
For renewal	3,049	3,695	3,844	4,089	6,267
Applications disposed:					
Maturing to registration	20,132	19,400	20,969	21,499	21,833
Abandoned	5,375	5,666	6,551	5,859	5,907

NATIONAL BUREAU OF STANDARDS (Selected workload data)

Item	Fiscal years				
	1965	1966	1967	1968	1969
CALIBRATIONS, TESTS, AND STANDARD SAMPLES:					
Conducted for the public:					
Number of calibrations	44,600	27,200	22,810	19,282	17,053
Number of tests	9,800	4,100	1,234	[1] 145	81
Number of standard samples	66,700	64,600	65,200	[1] 40,000	[1] 33,096
Conducted for Government agencies:					
Number of calibrations	7,200	7,900	9,780	9,179	7,008
Number of tests	32,800	21,700	11,513	10,763	13,525
Number of standard samples	3,700	4,800	4,500	[1] 3,000	[1] 2,412
Total	164,800	131,300	115,037	82,369	73,175
PUBLICATIONS:					
Number of papers published	1,271	1,050	932	992	1,098
Number of permanent technical staff	1,607	1,491	1,475	1,318	1,235
Number per staff member	.79	.74	.63	.75	.56
CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION:					
Document acquired	45,000	49,000	52,000	[2] 44,200	[5] 51,000
Documents announced	45,000	49,000	52,000	37,000	35,800
Document inventory and dissemination:					
Document distribution	1,476,000	1,900,000	2,025,000	[3] 2,220,000	2,298,000
Sales income	$1,144,000	$1,534,000	$1,611,000	$1,690,000	$2,724,000
Reference searches performed	97,000	.....	.....	([4])	.....

[1] New reporting basis this year excludes microcopy test chart which sells in large numbers but not actually a "sample." [2] 7,200 for DOD community use only. [3] Includes standard orders. [4] Program in redesign stage. [5] 15,200 for DOD community use only.

OCEAN SHIPPING

INTRODUCTION

The historic mission of the Department of Commerce is to "foster, promote and develop the foreign and domestic commerce" of the United States. To insure that the waterborne portion of this trade can be carried at fair and reasonable rates a strong American Merchant Marine is essential. This Merchant Marine is also required to support the Nation's armed forces in a national emergency.

HIGHLIGHTS OF 1969

- The United States maintained its position of leadership in the building and operation of containerships.
- Eight tankers were placed under contract for construction in U.S. shipyards by non-subsidized operators, reflecting an upsurge of interest in ownership of U.S. flag tankers to carry oil from the newly discovered oil fields on Alaska's North Slope.
- New applications for Federal Ship Mortgage Insurance on 18 ships and 360 barges, aggregating $141.9 million, were approved, and contracts aggregating $56.6 million were placed on 7 ships for which commitments had been made in the previous year. This brought the total insurance in effect at the year's end to $751.6 million (including interest) on 144 ships and 360 barges.
- Under the Ship Exchange Program 17 Government-owned ships were exchanged for 17 privately-owned ships.
- N.S. SAVANNAH underwent its first partial refueling, having traveled 331,680 miles using only 122.4 lbs. of uranium since its entry into service in 1962.

MARITIME ADMINISTRATION

Function

The Maritime Administration administers programs authorized by the Merchant Marine Act of 1936, as amended, and related shipping statutes to aid the development, operation, and maintenance of an efficient and modern American Merchant Marine. To maintain an up-to-date shipbuilding capability in the United States, the government may pay the difference between the cost of building a merchant ship in a U.S. shipyard and the estimated cost of building a similar ship in a representative foreign shipyard, up to 55% of the domestic cost. This construction-differential subsidy may be paid only on ships for use in foreign trade.

Those steamship lines which provide required services on U.S. Essential ForeignTrade Routes may also receive an operating-differential subsidy to make up the difference between principal U.S. operating costs such as seamen's wages, and the similar costs of the line's foreign competitors. At present 14 shipping companies operating 293 ships, or about one-third of the privately owned fleet, receive about $200 million a year in operating subsidies. The Government also provides ship mortgage insurance and other aids to merchant shipping, research, maintenance of the reserve fleet, and maritime training.

Shipbuilding

The United States maintained its position of leadership in the building and operation of containerships. There were 77 containerships in operation under U.S. flag and 51 more under construction or conversion as of December 31, 1968. The dominant position of the United States in the principal Atlantic and Pacific container trades was indicated by the carriage of 68% and 64% of the container cargo respectively in the first quarter of calendar year 1969.

The Maritime Administration considers containerization a major key to a more economic and competitive American Merchant Marine, and this is evidenced in the fact that the 10 new ships and 8 conversions on which it agreed to pay construction subsidy during fiscal year 1969 can carry full loads of containers or loaded barges.

Three of the new ships, to be built for Lykes Brothers Steamship Company by General Dynamics, Quincy, Massachusetts, will carry pre-loaded barges, a concept directed to the simplification of cargo handling as a means of reducing costs.

The other 7 new ships reflect the Agency's concern with procuring vessels in a manner and in numbers that will result in the lowest overall cost, in addition to insuring that ships built with Government assistance are the most suitable for the proposed service and are the most productive available. American President Lines, Inc., and Farrell Lines, Inc., agreed on a basic ship design, and a joint invitation for bids to build three ships for the former and four for the latter company was issued. All seven will be built by Ingalls Shipbuilding Division, Litton Systems, Inc., Pascagoula, Mississippi, at a cost less than would have been possible without multiple procurement.

The subsidized conversions contracted for during the year were to convert 8 Mariner, break-bulk vessels owned by United States Lines, to full containerships. The work is to be done by four shipyards: Alabama Drydock and Shipbuilding Co., Mobile, Alabama (2); Bethlehem Steel Corp., Key Highway, Baltimore, Maryland (2); Todd Shipyards Corp., Galveston, Texas yard (2), and Brooklyn, New York yard (1); Norfolk Shipbuilding and Drydock Co., Norfolk, Virginia (1). Total cost of the 10 new ships and 8 conversions is $314 million, of which approximagely $160.5 million will be paid in construction subsidy.

Bids on four containerships, on which construction subsidy had been requested, were received before the end of the year. Two were planned as part of the replacement program for United States Lines, Inc., and two were for Matson Navigation Company, an unsubsidized operator.

At the year's end, applications were pending from 6 subsidized and 8 unsubsidized operators for construction subsidy for 54 new and converted ships, including 30 bulk carriers. Funds had not been made available for construction aid in building bulk carriers. However, the Maritime Administration undertook a research effort to determine economic feasibility and to design and develop a merchant ship for bulk trades that could be competitive with little or no Government help. Reports were issued indicating the long-range bulk trade prospects, and outlining possible characteristics and financial arrangements for ships of this type.

Eight tankers were placed under contract for construction in U.S. shipyards by non-subsidized operators, reflecting an upsurge of interest in ownership of U.S. flag tankers to carry oil from the newly discovered oil fields at Prudhoe Bay on Alaska's North Slope to U.S. West Coast ports, and possibly to U.S. East Coast ports by way of the Northwest Passage. Feasibility of the latter operation was to be investigated by the 105,000 deadweight-ton supertanker MANHATTAN rebuilt as an ice-breaker oil tanker. If successful, it was anticipated that more such tankers would be ordered for U.S. registry.

Unsubsidized operators also contracted to build two chemical carriers and to convert 20 ships in American shipyards.

Twenty-five new ships were delivered during the year, including eighteen subsidized ships, half of which were containerships, six non-subsidized tankers, and a floating laboratory for the National Science Foundation. Fifteen nonsubsidized conversions were also completed, of which 11 C4's and 2 T2's were converted as part of the Ship Exchange Program, and 2 others were private ventures.

Ship Operations

The Maritime Administration is responsible for directing the operation of Government-owned merchant ships in national emergencies. After the Defense Department asked in 1965 for ships from the National Defense Reserve Fleet to assist in carrying military supplies to Vietnam, 161 ships were withdrawn, repaired and assigned to private shipping companies under General Agency Agreement (GAA) for operation under the direction of the Military Sea Transportation Service (MSTS). Although 144 Government-owned ships remained under GAA throughout the year, reduced requirements for cargo in Southeast Asia led to placing several ships in Reduced Operational Status during the year and withdrawing many privately owned ships from charter. At year's end 35 Government-owned ships were in Reduced Operating Status, with many of those remaining in active service scheduled for withdrawal.

Of the 33.2 million tons of cargo carried to Vietnam by U.S. ships from July 1, 1965, through June 30, 1969, Maritime Administration ships carried 8.6 million measurement tons of cargo, or 26% percent of the total; privately owned ships carried 22.5 million tons, or 67.6%; and the remaining 2.1 million, or 6.4%, was carried by the nucleus fleet owned by MSTS.

In part as a result of reduction of military cargo requirements, the overall volume of U.S. commercial trade carried in U.S. vessels increased from 5.3% in calendar year 1967 to 6.4% in calendar year 1968. This was the first time carriage of U.S. foreign trade in U.S. ships, by volume, had increased since World War II. In terms of value, however, U.S. flag carriage of U.S. foreign trade continued to decline, dropping from 21.7% in calendar year 1967 to 21.1% in calendar year 1968. The Maritime Administration continued its efforts to encourage traders to use American-flag ships.

Reduction in military cargo requirements also enabled U.S.-flag vessels to come closer to meeting the require-

ment that half of Government-sponsored cargoes be carried in U.S.-flag ships if such ships are available at fair and reasonable rates. U.S. flag ships carried 47.4% of U.S. Government sponsored cargoes in calendar year 1968 as compared with 40% in 1967. Rates for carrying these cargoes were generally well below the Maritime Administration's "fair and reasonable" guideline rates, a reflection of the greater competition for this type of cargo.

Passenger services continued to suffer losses in spite of subsidy, with three of the remaining 13 subsidized passenger ships withdrawn from service by the year's end. These were the ATLANTIC, CONSTITUTION, and INDEPENDENCE, the passenger fleet of American Export Isbrandtsen Lines, Inc. Still under investigation was the possibility of a consolidated company to operate the passenger ships owned by American Export Isbrandtsen Lines, Moore-McCormack Lines, Inc., and United States Lines, Inc.

Labor problems continued to plague the merchant marine throughout the year, with 18,550, 2,398,200, and 30,000 mandays lost in strikes by seamen, longshoremen, and shipyard workers, respectively. Efforts were being made by union, Government and industry leaders, however, to resolve the problems of container handling and equalization of benefits which have, for several years, been serious sources of contention in the industry.

Mortgage Insurance and Exchanges

Under the Federal Ship Mortgage Insurance program, the Government may insure commercial loans obtained to aid in building or converting ships. New applications to insure 18 ships and 360 barges, aggregating $141,863,000, were approved, and contracts aggregating $56,629,000 were placed on 7 ships for which commitments had been made in the previous year. This brought the total insurance in effect at the year's end to $751.6 million (including interest) on 144 ships and 360 barges. Applications were pending for insurance of 35 ships, 55 tugs, barges, and miscellaneous types, and 831 lighters and barges for carrying on board ship, for a total coverage of $401.7 million.

The Federal Ship Mortgage Insurance program has resulted in more than $1.9 billion worth of work for American shipbuilders. Only eight defaults have occurred on insured mortgages, the final one in fiscal year 1969. The Government paid the mortgage on the H.S. VICTORIA, a hydrofoil owned by Northwest Hydrofoil Lines, after the vessel sustained heavy damage upon striking a submerged log in the Puget Sound. The ship was repaired and was chartered for operation at the end of the year.

The Vessel Exchange program provides that unsubsidized operators may exchange old, uneconomic ships for better types of ships from the National Defense Reserve Fleet, paying in cash the excess value of the ship traded out over that traded in. During the year 17 Government-owned ships were exchanged for 17 privately-owned ships. Since the inception of the program in 1960, 120 Government-owned ships have been traded out for 124 privately-owned ships and approximately $25.3 million in cash. Reconversion of the traded-out vessels has provided approximately $313.0 million of work to U.S. shipyards, through fiscal year 1969.

Research and Development

During the year, increased emphasis was placed on the need to apply technological advances to construction and operation of merchant ships, as a major means of modernizing and revitalizing the fleet. At year's end plans were underway for a major conference on Research and Development to seek the advice and participation of the maritime industry in a five-year program with the object of improving the competitive status of the U.S. merchant marine.

Surface-effect ship research under the Joint Surface-Effect ship program of the Navy and Maritime Administration advanced to the point that contracts were awarded to Aerojet-General Corporation, El Monte, California, and the Bell Aerosystems Company, Buffalo, New York to implement the testcraft program, a major phase in the determination of the feasibility of building and operating large, high-speed surface-effect craft for oceangoing service. The cost-plus-incentive fee contracts will be incrementally funded with funding for each contractor in fiscal year 1969 established at $1.55 million to cover detailed engineering design.

A milestone in the history of the N.S. SAVANNAH was passed when the world's first nuclear-powered merchant vessel underwent its first partial refueling in the fall of 1968, having traveled 331,680 miles using only 122.4 lbs. of uranium since its entry into service in 1962. After refueling, the ship returned to a fifth year of commercial operation under bareboat charter to First Atomic Ship Transport, Inc.

Savings and Sales

Savings of $6.7 million were made during the year through Economy, Efficiency, and Effectiveness projects, including value engineering projects. In addition, 99 ships were sold for scrap or non-transportation use during the year for a sales return of $4.9 million. From 1958 through 1969 a total of 1,286 ships were sold for a total return of over $76 million.

Status of the American Merchant Marine

On June 30, 1969, there was a total of 2,013 ships of about 25 million deadweight tons (dwt.) in the U.S.

Merchant Marine, of which 1,013 of 15.5 million dwt. were in active service. There were 1,017 ships in the Reserve Fleet, a decrease of 45 since last year, of which 623 were on the retention list for emergency use. Most of the remainder were scheduled to be scrapped.

The U.S. Merchant Marine on December 31, 1968, ranked 5th among the world's merchant fleets in tonnage (including Government-owned ships), and 12th in tonnage of new ships built during the 1968 calendar year.

OCEAN SHIPPING

Summary of Employment and Financing, 1965 to 1969

	End of year employment					Obligations (in thousands)				
	1965	1966	1967	1968	1969	1965	1966	1967	1968	1969
General funds:										
Maritime Administration:										
Ship construction	.....	.....	.....	.....	.....	$97,349	$147,484	$20,818	$126,410	$168,804
Operating differential subsidies	.....	.....	.....	.....	.....	212,901	174,146	196,936	226,864	197,770
Research and development	.....	.....	.....	.....	.....	9,344	5,004	7,226	5,953	8,132
Salaries and expenses	1,604	1,582	1,542	1,488	1,646	15,397	14,755	15,389	21,706	19,780
Maritime training	271	272	278	296	311	3,811	3,949	5,117	4,757	5,339
State marine schools	.....	.....	.....	.....	.....	1,864	1,627	1,635	1,816	1,989
Total, General funds	1,875	1,854	1,820	1,784	1,957	340,666	346,965	247,121	387,506	401,814
Total, Other funds[1]	510	5,430	7,933	7,000	6,100	13,375	119,280	251,243	190,506	165,654
Total, All funds	2,385	7,284	9,753	8,784	8,057	354,041	466,245	498,364	578,012	567,468

[1] Other funds include public enterprise funds and intra-governmental funds. Included is employment, but not funds, for allocation accounts carried in the budget schedules of other agencies. Amounts for advances and reimbursements include reimbursements between Commerce appropriation accounts as follows: 1965—$4,070,000; 1966—$3,679,000; 1967—$3,204,000; 1968—$466,000; 1969—$154,000.

MARITIME ADMINISTRATION

(Selected workload data)

	Fiscal years				
	1965	1966	1967	1968	1969
CONSTRUCTION-DIFFERENTIAL SUBSIDIES:					
Number of new ships contracted for	14	17	1	12	10
Total number under construction	38	44	37	36	28
Total expenditures (000)	$87,687	$73,383	$82,525	$97,707	$96,512
OPERATING-DIFFERENTIAL SUBSIDIES:					
Number of companies	15	14	14	14	14
Number of ships covered	311	309	311	307	293
Total subsidy paid (in 000's)	$213,334	$186,628	$175,632	$200,130	$194,703
SHIP MORTGAGE INSURANCE:					
Number of ships insured	79	98	113	129	144 and 360 barges
Insurance in effect, principal and interest (000)	$421,591	$485,184	$562,096	$651,552	$751,555
GOVERNMENT-OWNED SHIPS:					
National defense reserve fleet	1,595	1,327	1,151	1,062	1,017
Number under bareboat charter	23	13	11	8	6
General agency agreement	2	109	166	144	144
U.S.-FLAG OCEANBORNE FOREIGN TRADE:[1]					
Long tons carried in U.S. -flag ships (000,000)	27.7	25.9	21.7	26.8	([1])
Percent of U.S. foreign trade	7.5	6.8	5.6	6.4	([1])

[1] On calendar year basis. Data for 1969 not available.

OFFICE OF FOREIGN DIRECT INVESTMENT

HIGHLIGHTS OF 1969

- OFDI, established in January 1968 to administer one of the programs to improve the U. S. balance of payments, substantially exceeded its goal in its first year of operation.
- In increasing their outlays abroad for plant and equipment expenditures by 5 percent in 1968, U. S. direct investors financed a much larger portion of these outlays by the use of foreign borrowing.
- A major liberalization by the Administration, announced in April 1969, effectively removed restraints on 2,600 small and medium-sized companies by raising the minimum investment quota from $200,000 to $1 million, introduced an optional quota based on historical earnings, and eliminated quarterly reporting requirements for 75 percent of the companies affected by the program.

Function

The Office of Foreign Direct Investments (OFDI) administers a temporary program designed to reduce the immediate impact of foreign direct investment on the U. S. balance of payments. The primary effect of OFDI regulations is to induce U. S. firms and other U. S. investors to borrow overseas a portion of the funds they use for foreign direct investment. While there are no restrictions on the amount of overseas business expansion, U. S. companies and individuals are limited in what they can invest or reinvest in foreign affiliates in which they have an interest of 10 percent or more.

The regulations establish quotas for "direct investment," defined as net transfers of capital by U. S. persons to their incorporated and unincorporated affiliated foreign nationals and the direct investor's share in the reinvested earnings of such affiliates. The program also limits what these direct investors may hold abroad in liquid form.

General

The present Administration has taken the position that capital controls should be ended as soon as balance of payments conditions permit. On April 4, 1969, President Nixon said that fundamental economics call for "ultimate dismantling of the network of direct controls which may seem useful in the short run but are self-defeating in the long run."

A number of measures have been taken to liberalize the FDI program, reduce the paperwork burden, and allow investors more flexibility in conducting their foreign activities.

The Program in Calendar Year 1968

Balance of payments saving far exceeded expectations in the first year of the Foreign Direct Investment Program. Established on a calendar year basis on January 1, 1968, the program was targeted to reduce direct investment (net outflows from the United States plus reinvested foreign earnings) from $3.7 billion in 1967 to $2.7 billion in 1968, by inducing American firms to finance a large portion of their foreign expansion by borrowing abroad. The actual figure for 1968 was about $1.3 billion, a decrease of $2.4 billion from that of 1967. In addition, the program undoubtedly caused a balance of payments savings by preventing companies from retaining large amounts of liquid funds overseas.

The reduction in direct investment resulted largely from the greatly increased use of foreign-borrowed funds by U. S. companies. American businessmen had begun borrowing overseas on a large scale under the voluntary program which was in effect in 1965-67. The use of foreign-borrowed funds rose from about $600 million in 1967 to approximately $2.4 billion in 1968. An indication of the widespread use of foreign borrowing was the 3,900 certificates covering foreign borrowings filed with the Office in 1968.

As a result of these massive borrowings, companies were able to increase their overseas outlays for plant and equipment in 1968. Figures compiled by the Office of Business Economics indicate that such outlays increased by about 5 percent in 1968 (excluding Canada, which is exempt from the program), and another increase is projected for calendar year 1969.

The Office received almost 1,300 requests for specific authorizations or exemptions under procedures which

provide relief from the exemptions under procedures which provide relief from the restrictions of the regulations under certain circumstances. Many of these were withdrawn late in the year as changes in the regulations permitted companies more flexibility. For example, many requests were found to be unnecessary after Canada was excluded from direct investment restraints. The Office also answered over 700 requests for legal interpretations.

The Compliance Division has under investigation a number of cases of noncompliance with the 1968 program. It is the policy of the Office to attempt to dispose of noncompliance cases through administrative procedures. Settlement may involve a reduction of future allowables and repatriation of funds.

A direct investor is required to file a base period report for use in determining his investment allowable, and quarterly and annual reports on his direct investment transactions throughout the year. By year end, approximately 3,300 direct investors were reporting 1968 foreign direct investment activity with the Office.

The Program for Calendar Year 1969

The liberalization of the program in April 1969, under the new Administration involved both an increase in the amount of permissible direct investment and an easing of the reporting burden. The target ceiling for direct investment for calendar 1969 was established at $3.35 billion compared with a ceiling of $2.7 billion in 1968.

While direct investment allowables continued to be based on the investor's overseas experience in 1965-66 in each of three geographical areas, an optional method based on earnings was introduced. The optional method permits a company to elect an investment allowable equal to 30 percent of its foreign earnings in each of the three geographical areas.

To ease the burden on small and medium-sized investors who may experience difficulty in borrowing abroad, the amount of direct investment which is permitted, regardless of base period experience or earnings, was raised from $200,000 to $1 million, thus providing additional allowables for 2,600 investors. About the same number of small and medium-sized investors were also relieved of the burden of filing quarterly reports.

The Office also changed the regulations to permit greater flexibility to construction, airline, and shipping companies whose operations do not conform to the general pattern.

As a result of these actions, applications for specific authorizations received by the Office have been greatly reduced.

Indications are that direct investment in calendar year 1969 will again be below the target. It is expected also that the greater flexibility within the program and increased familiarity with the regulations will result in far fewer compliance actions for 1969.

OFFICE OF MINORITY BUSINESS ENTERPRISE

Function

The Office of Minority Business Enterprise (OMBE) administers a Department of Commerce program which is the focal point of the Administration's efforts to assist the establishment of new minority enterprises and expansion of existing ones by coordinating and concentrating public resources and obtaining the participation of the private and independent sectors of the Nation to this end.

Operation of the Program

The President, on March 5, 1969, issued Executive Order 11458 directing the Secretary of Commerce to establish a program to coordinate the plans, programs and operations of the Federal Government that affect minority business enterprise; to promote activities of State and local governments and private and independent sector institutions that may facilitate growth of minority business; and to develop and disseminate information helpful to those who would assist and/or engage in minority business development.

The general concept of the OMBE Program is coordinating the programs of the Federal Government and mobilizing the resources of State and local government and the private sector which may be relevant to minority business enterprise; and initiating programs which stimulate and involve private and public institutions which have not yet committed resources to the minority business development effort. It also recommends new initiatives in, or modifications of, existing programs; marshals and makes available commitments of capital expertise and information in such a way that the needs of minority business development can most effectively be filled; functions as a national clearinghouse on minority business development, informing concerned parties of the state of the art; acts as a "wholesaler" of business ideas, resources, opportunities and information and interacts with concerned institutions, public and private, at a policy level; functions primarily as a broker of ideas for the effective development of minority enterprise along with follow through and evaluation on adopted programs; and solicits the counsel of the minority community representatives in order to remain responsive to their needs.

OMBE will not become involved with individual cases or with programs at the operational level, nor will it attempt to supplant the private, national, and local organizations (such as banks or community development organizations) which apply resources in specific instances. It will not have any project funds and will not compete with existing Government activities.

The creation of OMBE represents an innovative approach toward a national problem, since it does not seek to encroach upon existing functions of Government agencies or private institutions, but instead seeks to stimulate and build their ongoing activities and create and develop supplemental new approaches to resolving this serious problem. To implement this concept, certain steps have been or are in the process of being effected within the first three months of operation.

The Office of Minority Business Enterprise is being staffed with a total of 50 people, including minority representatives and specialists in various fields. As experience is gained in analyzing and developing programs, an over-all strategy will be developed and will appear in a published document.

In the Government sector, an Interagency Committee has been created, consisting of representatives of the major agencies in the Government with the capability of helping in the Minority Enterprise effort. This Committee is establishing task forces on Capital Development, Minority Construction Contracting, and Federal Procurement. These three task forces will work at determining the extent to which minority participation can be assisted.

Also within the Government sector, a study is being made of the various programs in the 1970 Budget which could provide resources to help in this effort. As a result, a total dollar goal will be identified for assistance to Minority Business Enterprise in Fiscal Year 1970 by way of loans, grants, and guarantees. The Task Force on Capital Development will be initiating studies to determine the extent to which Government assistance is desirable for minority enterprise in future budgets.

OMBE is producing a special catalog of Federal Assistance Programs for Minority Business Enterprise, listing the major Government programs available for the purpose. An information center is being created within OMBE and is in the process of accumulating data on efforts being made within the business sector, founda-

tions and community action organizations, and all levels of Government. Analyses are being made of existing and potential activities in foundations, service clubs, churches, universities and similar organizations.

OMBE is preparing to publish a first Directory of Private Programs for Minority Business Enterprise, the first of a series of such publications which will make available lists of all existing private activities to help minority business, and is developing and plans to publish a monthly organ to communicate new developments in minority enterprise to interested groups across the country.

Within the private sector a series of programs has been initiated to draw in elements of the business community and the professions. In cooperation with the Small Business Administration (SBA), OMBE has developed a new franchising program to increase ownership opportunities available to minority individuals. Each participating franchisor will be asked to seek a minimum of twenty-five minority franchisees within the next two years. SBA has agreed to expedite loan applications under this program. A meeting is scheduled with the first twenty-five franchisors. Eventually, over 200 of the Nation's leading franchisors will be asked to take part.

Chief executives of the Nation's leading petroleum companies will meet with OMBE in Washington to discuss ways of assisting minority business development. It is hoped that the companies to be represented will agree to try to increase significantly the number of service station opportunities available to minority individuals. OMBE is also seeking to increase the number of automobile dealerships available to minority people. Following discussions in Detroit, the Big Four agreed to increase their efforts to provide dealership opportunities. The present goal is to achieve 100 such dealerships.

OMBE at the present time has a long list of additional plans and projects in the course of development and implementation. In these, as in those already initiated, it will hereafter be guided by the advice received by the Advisory Council. Included among potential projects now under consideration are:

Voluntary Credit Corporation
Minority-owned shopping centers
Assistance to local action groups
Increased foundation participation
Special assistance to minority veterans returning from Vietnam
Corporate spin-offs of subsidiaries to minorities
Subsidization of interest rates
Increased participation by commercial banks

When he directed the establishment of the Office of Minority Business Enterprise the President in his message of March 5, 1969, stated that:

"This is not a substitute for the many other efforts that continue to be needed if we are to make headway against the ravages of poverty. It is a supplement, dealing with a special but vital part of the broader effort to bring the members of our minority groups into the economy. Its success will be measured by tangible results, not by the volume of studies.

"What we are doing is recognizing that in addition to the basic problems of poverty itself, there is an additional need to stimulate those enterprises that can give members of minority groups confidence that avenues of opportunity are neither closed nor limited; enterprises that will demonstrate that blacks, Mexican-Americans and others can participate in a growing economy on the basis of equal opportunity at the top of the ladder as well as on its lower rungs."

APPENDIX

Table 1.—LIST OF GAO REPORTS ISSUED TO THE CONGRESS

Title	Date
Need for Improvement in the Management of Laboratory Equipment at the Boulder Laboratories, National Bureau of Standards, and Environmental Science Services Administration	July 9, 1968
Need to Improve Procurement Procedures for Outfitting Vessels Activated for Use in Southeast Asia, Maritime Administration	Nov. 4, 1968
Improvements Needed in Procedures for Determining Supplementary Grant Assistance for Public Works and Development Facility Projects, Economic Development Administration	Feb. 4, 1969
Comparison of Taxes in the District of Columbia with Those of Its Environs and Other Metropolitan Areas	March 14, 1969
Need for Improvement in Procuring and Stockpiling Jewel Bearings, Department of Commerce and Others	April 17, 1969

Table 2.—ACTION TAKEN ON SIGNIFICANT GAO RECOMMENDATIONS

Date of report	Report title	GAO recommendation	Action taken
July 9, 1968	Need for Improvement in the Management of Laboratory Equipment at the Boulder Laboratories, NBS and ESSA.	That a systematic program be established for inspections of laboratory facilities, more extensive use of equipment pools be established, and all outstanding loans of equipment be reviewed.	Commerce officials generally agreed and measures have been taken or planned to improve the management of equipment at the Boulder Laboratories.
Nov. 4, 1968	Need To Improve Procurement Procedures for Outfitting Vessels Activated for Use in Southeast Asia, MARAD.	That uniform procurement procedures for outfitting vessels be followed by the coast district offices including provision for standardizing items, consolidated purchases, and use of Government sources of supply when possible.	A study group was appointed at MARAD to study the complete logistic support system of the general agency operation.
Feb. 4, 1969	Improvements Needed in Procedures for Determining Supplementary Grant Assistance for Public Works and Development Facility Projects, EDA.	That more specific guidelines be developed for estimating the revenue producing capabilities of projects to be used as a basis for determining the amount of supplementary grants.	EDA did not agree with the need for more specific guidelines, but explained that they are devising ways of improving their information concerning a projects revenue producing capabilities.

Table 3.–LIST OF INTERNAL AUDIT REPORTS

Operating Unit or Office and Title of Reports Issued

OFFICE OF THE SECRETARY

1. Report on Audit of Travel Practices and Procedures, Office of Budget and Finance.
2. Review of Selected Procurement Activities, Office of Administrative Services.
3. Final Report on Interim Audit of Incurred Costs on Contract No. C-360-66 (NEG), Social Science Research and Development Corp., Berkeley, California, Office of Administrative Services.
4. Final Audit of Incurred Costs on Contract No. 7-35085 With Computer Usage Development Corp., Washington, D. C., Office of Administrative Services.

BUREAU OF THE CENSUS

1. Report on Audit of the Feasibility of Capitalizing the Mailing List for the 19th Decennial Census.
2. Report on Audit of the Feasibility of Using Unfranked Return Envelopes for Censuses Performed by Mail.
3. Report on Review of the Financial Management of Selected Trust Fund Reimbursable Projects.
4. Report on Review of Audit Activities of the Budget and Finance Inspection Branch.

BUREAU OF INTERNATIONAL COMMERCE

1. Report on Review of the Operations of the Exhibits Transportation Section, Office of International Trade Promotion.
2. Report on Review of the Trade Center, Bangkok, Thailand.

ECONOMIC DEVELOPMENT ADMINISTRATION

1. Final Report on Review of Administrative Controls Over the Business Loan Program, Office of Business Development.
2. Report on Audit of Travel Policies and Practices.
3. Final Audit on Project No. 03-1-00123, Construction of Modern Water Treatment Plant, Buckhannon, West Virginia.
4. Final Audit on Project No. 08-1-00212, Construction of a Development Center Building, Ash Flat, Sharp County, Arkansas.
5. Final Audit of Project No. 04-1-00162, Construction of Improvements and Extension of the Public Sewer System, Monticello, Georgia.
6. Report on Audit of Project No. 04-1-00109, Construction of Improvements and Extensions of the Public Water System, Monticello, Georgia.
7. Report on Review of Business Loan Project Nos. 02-B-99179 and 02-3-00298, Chesapeake Clamchip Corporation, Cambridge, Maryland.
8. Report on Audit of Project No. 03-1-00358, Construction of Sewer System Extension and Improvements, Middleport, Ohio.
9. Report on Final Audit of Project No. 02-1-00157, Construction of Water Distribution System, Cambridge, Maryland.

ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION

1. Report on Review of Administrative Practices, Central Region, Weather Bureau.
2. Report of Substation Activities, Weather Bureau.
3. Report on Review of Travel Practices, Las Vegas, Nevada, Units.
4. Review of Administrative Practices, Eastern Region, Weather Bureau.
5. Review of Selected Activities of the Mid-Continent Field Office, Coast and Geodetic Survey.
6. Report on Review of Management of Research and Development Contracts and Grants.
7. Report on Audit Evaluation of the Proposal Submitted by Mr. Phillip Light, Clayton, Missouri, for Fixed-Price Contract No. E-191-69 (N).
8. Report on Audit Evaluation of the Proposal Submitted by Gulf Universities Research Corporation, Houston, Texas, for Fixed-Price Contract No. E-189-69 (N).

Table 3.–LIST OF INTERNAL AUDIT REPORTS–Con.

Operating Unit or Office and Title of Reports Issued
MARITIME ADMINISTRATION
1. Report on Review of Selected Aspects of Ship Construction Activities.
2. Report on Review of Selected Research and Development Activities and Contracts.
3. Report on Audit of Travel Policies and Practices.
NATIONAL BUREAU OF STANDARDS
1. Report on Review of Clearinghouse for Federal Scientific and Technical Information.
2. Report on Audit of Travel Policies and Practices.
3. Report on Final Audit of Incurred Costs on Contract Nos. CST-200 and CST-233 with Fischbach and Moore-Walter Truland Corporation, Gaithersburg, Maryland.
4. Report on Final Audit of Incurred Costs on Contract No. CST-444 With Programming Sciences of Washington, Inc.
OFFICE OF STATE TECHNICAL SERVICES
1. Report on Final Audit of Incurred Cost on STS Grant No. AG-3-66 Awarded to the Board of Regents of the University Systems of Georgia, Atlanta, Georgia.
UNITED STATES TRAVEL SERVICE
1. Report on Review of the United States Travel Service, Far East Regional Office, Tokyo, Japan.
2. Report on Review of the Administrative Operations of Regional Offices–Mexico City, Mexico; Caracas, Venezuela; and Sao Paulo, Brazil.

Secretaries of Commerce and Labor and of Commerce

	Tenure	
Commerce and Labor:	*Begun*	*Ended*
George B. Cortelyou	Feb. 18, 1903	June 30, 1904
Victor H. Metcalf	July 1, 1904	Dec. 16, 1906
Oscar S. Straus	Dec. 17, 1906	Mar. 5, 1909
Charles Nagel	Mar. 6, 1909	Mar. 4, 1913
Commerce:		
William C. Redfield	Mar. 5, 1913	Oct. 31, 1919
Joshua W. Alexander	Dec. 16, 1919	Mar. 4, 1921
Herbert C. Hoover	Mar. 5, 1921	Aug. 21, 1928
William F. Whiting	Aug. 22, 1928	Mar. 4, 1929
Robert P. Lamont	Mar. 5, 1929	Aug. 7, 1932
Roy D. Chapin	Aug. 8, 1932	Mar. 3, 1933
Daniel C. Roper	Mar. 4, 1933	Dec. 23, 1938
Harry L. Hopkins	Dec. 24, 1938	Sept. 18, 1940
Jesse H. Jones	Sept. 19, 1940	Mar. 1, 1945
Henry A. Wallace	Mar. 2, 1945	Sept. 20, 1946
W. Averell Harriman	Oct. 7, 1946	Apr. 22, 1948
Charles Sawyer	May 6, 1948	Jan. 20, 1953
Sinclair Weeks	Jan. 21, 1953	Nov. 10, 1958
Lewis L. Strauss*	Nov. 13, 1958	June 30, 1959
Fredrick H. Mueller	Aug. 10, 1959	Jan. 19, 1961
Luther H. Hodges	Jan. 21, 1961	Jan. 15, 1965
John T. Connor	Jan. 18, 1965	Jan. 31, 1967
Alexander B. Trowbridge	June 14, 1967	Mar. 1, 1968
C. R. Smith	Mar. 6, 1968	Jan. 19, 1969
Maurice H. Stans	Jan. 21, 1969	

*Interim Appointee.