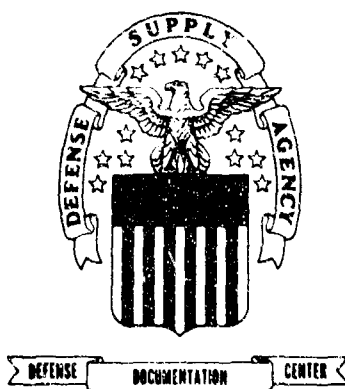


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(RCS DD-DSA (A) 21C (L))

ANNUAL HISTORICAL SUMMARY

DEFENSE DOCUMENTATION CENTER

1 JULY 1969 THROUGH 30 JUNE 1970



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DEFENSE SUPPLY AGENCY
DEFENSE DOCUMENTATION CENTER
CAMERON STATION
ALEXANDRIA, VIRGINIA 22314

1 December 1970

FOREWORD

This summary describes the more significant activities and achievements of the Defense Documentation Center during Fiscal Year 1970 (1 July 1969 through 30 June 1970). It was compiled and published in compliance with DSA Regulation No. 3399.1, Historical Activities.

Robert B. Stegmaier Jr.
ROBERT B. STEGMAIER, JR.
Administrator

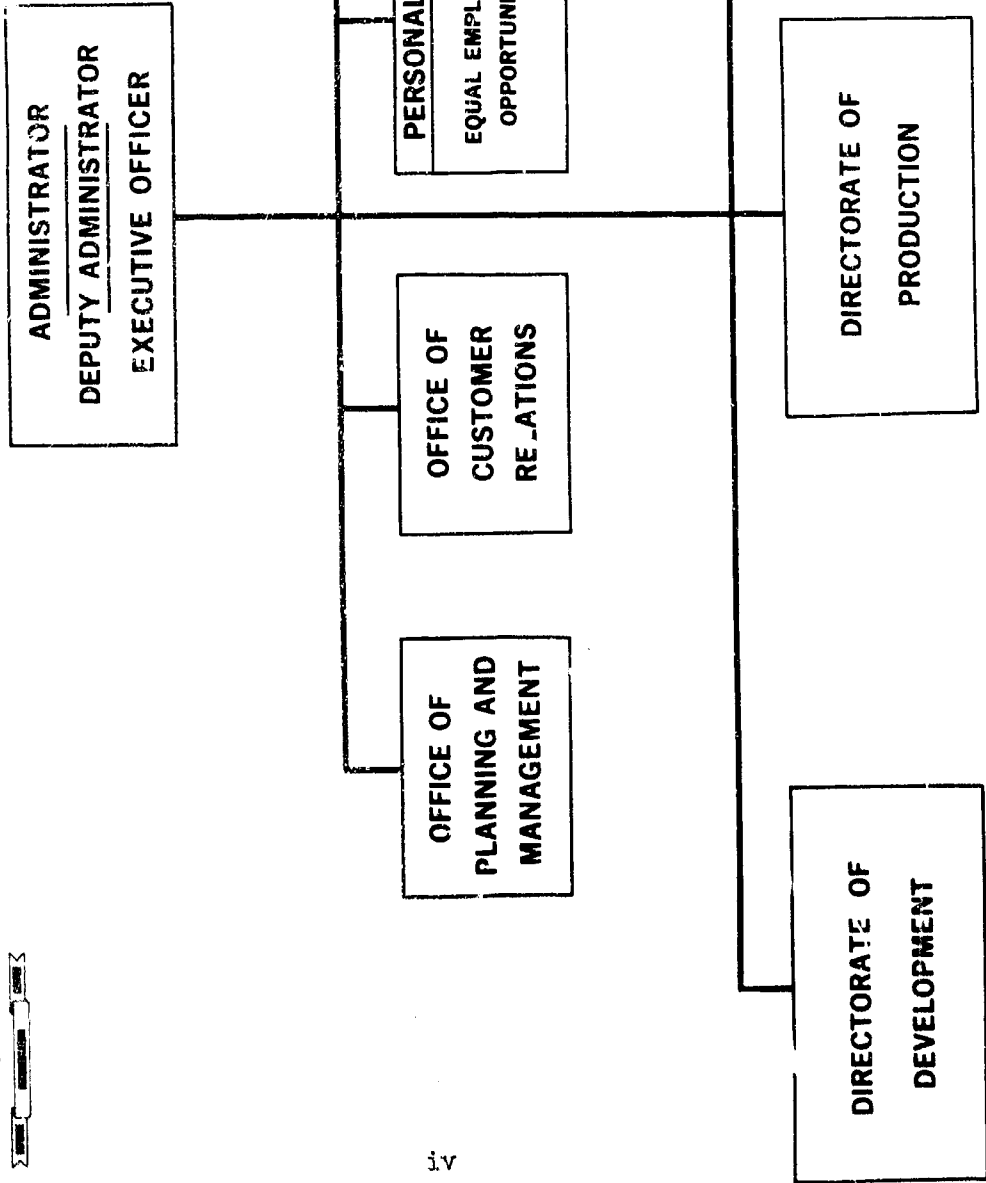
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DEFENSE DOCUMENTATION CENTER

DEFENSE SUPPLY AGENCY

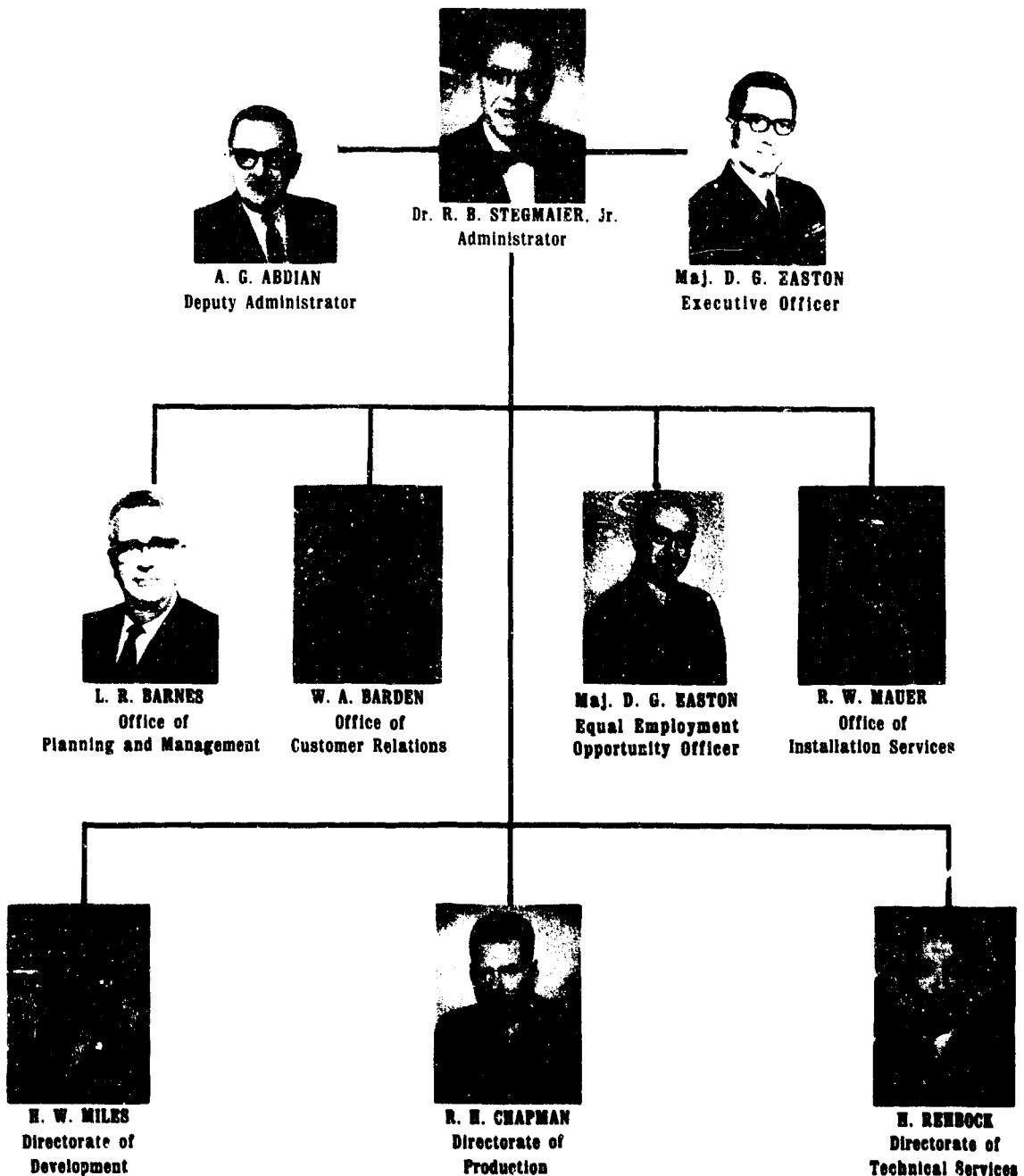


Approved by *[Signature]*
ROBERT B. STEGMAYER, Jr.
Administrator

Date: 1 November 1965
Prepared by: Office of Planning and Management

KEY PERSONNEL

DEFENSE DOCUMENTATION CENTER



I. DDC AND THE SCIENTIFIC AND TECHNICAL COMMUNITY

Each year the Department of Defense (DoD) spends billions of dollars on research and development (R&D) efforts to build and maintain a military capability commensurate with our national policies. These efforts include virtually every area of science and technology. One of the by-products of a program of this magnitude is a vast outpouring of scientific and technical knowledge which has immeasurable potential value to others performing similar work.

The feedback of this know-how for use in the Federal scientific and technical community is of significant value to DoD and other U. S. Government activities. The Defense Documentation Center (DDC), a major field activity of the Defense Supply Agency (DSA), is the primary DoD medium through which this feedback is accomplished.

As originally conceived, DDC was to be the central facility within DoD for the collection and secondary distribution of technical reports generated by Defense-funded research, development, test and evaluation (RDT&E). This function is still the foundation of most DDC operations. Over a million copies of such reports are furnished to the scientific and technical community each year.

During the past few years, advances in scientific and technical information technology have accelerated greatly. Many new tools and techniques have been developed and made available. Their potential application and the associated system implications are wide-ranging and complex. Additionally, the mass of available data creates many problems for the researcher in his efforts to identify and sort out from that mass the information he needs.

Within this environment, DDC's role in the Scientific and Technical Information (S&TI) Program has expanded correspondingly from the furnishing of hard-copy documents to providing a coordinated mix of products, services, and formats tailored to the users' needs. This mix may include full-size or microform copies of reports, other products in microform, bibliographies in selected subject areas, specialized announcements, tailored extracts from various management information data banks, and many other services from DDC's complex mix of assets.

In FY 1970, DDC continued to change with the advent of developments in the field of technical information management. Its responsiveness to the scientific and technical community continued to improve in terms of timeliness, relevance, and quality. Newer and better computer-based techniques and processes, and integrated systems were developed to aid in fulfilling increasing responsibilities to this community. Interactions with other Federal S&TI activities, Defense contractors, public and private research and educational institutions, and other domestic and foreign RDT&E information sources were also continued at a high level to enhance information interchange.

At the close of the year, many DDC developmental and experimental efforts were underway to find and test still better ways to serve the DoD community.

II. HIGHLIGHTS OF DDC MISSION RESPONSIBILITIES

The Defense Documentation Center serves as the central Department of Defense depository for and supplier of technical and management information covering completed and on-going RDT&E efforts. The Center supports Defense-related RDT&E activities by helping them determine what has been done and what is being done in their areas of technical interest.

Under the operational control of the Director, Defense Supply Agency, with policy direction from the Director of Defense Research and Engineering, the basic DDC mission consists of two major programs within the DoD S&TI Program. First, an Operational Program devoted to the operation, maintenance, and improvement of existing techniques, processes, and systems to provide approved and announced S&TI products and services for the interchange of technical information within DoD, and between DoD and other U. S. Government and authorized non-Government agencies. Second, a Development Program which provides major advances in terms of new and significantly improved S&TI products and services, and the identification and removal of technical barriers in S&TI transfer.

DDC acquires, stores, announces, retrieves, and provides secondary distribution of formally recorded results of the RDT&E performed or sponsored by the military departments and other DoD components. The DDC collection of technical reports totals more than 960,000 titles covering most areas of science and technology. Almost two-thirds of the collection, those reports accessioned since March 1953, are under computer control in the DDC Document Data Bank. Organizations registered as DDC users may obtain these reports in full-size paper copy or in microform. As a related function within the technical report program, DDC provides a bibliography service to the user organizations. Through this service, the Center produces listings with descriptions of technical reports in the collection which are related to the particular subject or combination of subjects specified by the requester.

The Center operates central DoD computer-based data banks of technical and management information resulting from Defense-related efforts in research and technology. The basic and most important of these is the DoD Research and Technology Work Unit Information System. This system is designed to collect specific elements of data on Defense-sponsored research and development efforts currently in progress; organize the data for computer storage; and provide reports on the types of work in progress, the current status of the efforts, costs, and other important information tailored to Government users' needs. DDC also provides certain information designed to serve the needs of DoD contractors and grantees. Other specialized data banks are maintained in a similar manner to satisfy the requirements of the Department of Defense and to provide information in support of interagency projects.

The other major DDC mission responsibility is the planning and execution of a development program. The program is concerned primarily with identifying and fulfilling customer requirements; the state-of-the-art of technologies involving information storage, retrieval, and dissemination; and with cooperative interagency development of new or improved systems related to information transfer.

Using its own facilities and resources or with contractor support, DDC conducts research on, tests, and evaluates information and documentation handling systems which indicate a potential for enhancing the effectiveness and efficiency of the DoD S&TI Program.

Other DDC services include: publication of announcement bulletins of new acquisitions and their indexes, primary distribution of technical reports from certain foreign countries to registered users, education and orientation of users and potential users, and referral to other sources of expertise should the scope of requested information exceed that available within DDC.

Products and services provided by DDC are available to components of DoD, other Federal Government agencies, and to their contractors, subcontractors, potential contractors, and grantees. Complete descriptions of these products and services, and procedures for registering to obtain them, are provided by the Office of Customer Relations, Defense Documentation Center, Cameron Station, Alexandria, Virginia 22314.

While the Center does not serve the public directly, every effort is made to give the public access to all reports which have no security or other distribution restrictions. Such reports are furnished to the Clearinghouse for Federal Scientific and Technical Information of the Department of Commerce, Springfield, Virginia 22151. This organization announces and makes them available for sale to the general public.

III. TECHNICAL REPORT SERVICES

Document Collection

The DDC document collection contains almost a million individual technical reports on RDT&E projects and subjects sponsored by, or of interest to DoD. Almost two-thirds of them, those accessioned in more recent years, are cataloged, indexed, and stored in the DDC computer, which permits rapid search and retrieval. The use of remote on-line terminals is being tested. Catalog card files are used to locate reports not in the automated file. The technical report collection includes: in-house laboratory reports prepared by DoD and other Federal Government agencies, those generated by Government contractors and grantees, scientific and technical reports acquired under agreements with friendly foreign countries, and reports resulting from independent research programs and donated to the DoD system. Annual DDC accessions are approximately 45,000 documents.

Although the document collection is heavily oriented toward military research and technology, there are also holdings in areas such as medicine, operations research, information science, computer technology, and group dynamics. DDC acquires these technical documents, stores them for retrieval, announces them for official use, and supplies information on them to Federal agencies and to their registered contractors, subcontractors, and grantees. The documents are disseminated as full-size paper copy, microfilm, or microfiche.

Technical Report Input

A total of 44,319 new technical reports were added to the DDC collection in FY 1970. This input consisted of 42,717 reports which were announced for availability in bulletins of either DDC or the Clearinghouse of the Department of Commerce, and 1,602 which were not announced. Classified reports, and those which were unclassified but had some distribution limitation, accounted for 56% of the announced reports. The remaining 44% was unclassified and had no distribution limitations. Average processing time for the announced reports, from initial receipt to publication of the announcement bulletin, was 48 calendar days.

In connection with report input, current DoD Instructions require that originators of DoD reports subject to inclusion in the DDC collection submit 20 copies of each report to the Center. This provides one copy for processing and the remainder for shelf stock to use in filling requests. This Center conducted a cost-benefit analysis of an Air Force recommendation to have the number of copies reduced from 20. Because of a decline in the demand for paper documents, a corresponding increase in microform, and improved techniques for reproducing paper documents, it was concluded that such reduction is feasible and can produce overall savings to DoD.

Conclusions were reflected in recommendations to HQ DSA and, at the close of the year, further action on the reduction was pending at DoD level.

Announcement Publications

Two publications are used to announce the availability of reports newly acquired by DDC. These are the Technical Abstract Bulletin (TAB) issued by the Center; and the U. S. Government Research and Development Reports (USGRDR), published by the Clearinghouse for Federal Scientific and Technical Information (CFSTI) of the Department of Commerce. Both publications are issued twice each month along with companion indexes. The indexes are cumulated quarterly and annually.

The TAB, a Confidential Technical Abstract Bulletin, announces classified documents and those unclassified documents which have had a limitation placed on their distribution. It underwent some significant modifications during the year. The Bulletin is printed by means of the Linotron computer-directed photocomposition process which uses a greatly improved type face with upper and lower case and boldface letters. This year, the Calendar Year 1969 annual indexes were also printed by this process. Beginning in January 1970, the Bulletin included confidential titles and abstracts of a certain category of documents which will be declassified after 12 years. Citations of foreign-language documents now also display a foreign-language contents note when an English abstract is not available. Both of these additions give the users more information on which to base their selection of documents for ordering. A further expansion of the TAB Indexes was the addition of a Title Index which lists all unclassified titles. Although this index did not become a regular feature until mid-FY 1970, a cumulation of titles of documents announced in CY 1969 was included in the TAB Annual Indexes for that year.

Unclassified reports having no distribution limitation are announced for DDC in the USGRDR along with similar reports produced by other Federal agencies. All DoD reports announced in the USGRDR are processed, stored, and distributed by CFSTI for DDC in accordance with Department of Defense and Department of Commerce agreement.

Both the TAB and the USGRDR, plus their indexes, are provided to DDC users based on need, interest, and security clearance of the user.

Technical Report Output

Demand requests (requests from users for specific reports) for 1,006,564 reports were filled during the year. An additional 541,450 copies were furnished through an automatic distribution experiment in which a controlled group participating in the

experiment and a limited number of Government agencies were provided microform copies of new reports falling within their predetermined areas of interest. This brought the secondary distribution of technical reports to a total of 1,548,014 for the year. About 86% of this total was in microform. Microfiche accounted for 95% and microfilm for 5% of the reports furnished in microform.

In addition to this secondary distribution, DDC made primary distribution of 19,947 copies of foreign scientific and technical reports. Twenty-six percent of these were classified, and 86% of the copies distributed were originals.

Bibliography Services

DDC continued to provide a variety of bibliographic services to its user community. Requests for over 24,000 bibliographies were processed during the year. References contained descriptive information to aid the user in determining those reports which were most pertinent to his work. Bibliographies provided through this service, together with the Center's regular announcement bulletins, reflect the findings of Defense R&D efforts already accomplished. This information, coupled with similar information regarding on-going work available from the Research and Technology Work Unit Information System, provides a comprehensive and current reference package.

Increasing Use of Microform

The trend toward wide acceptance and use of microform has accelerated greatly within the past two years. In FY 1968, about 18 percent of the requests for technical reports were filled with microform. During FY 1969, this trend was completely reversed with microform, mostly microfiche, accounting for 67 percent of requests filled. This percentage increased further in FY 1970 to 78 percent. Currently, almost all of the reports furnished by DDC in microform are on microfiche. This is primarily because of its acceptance and because it is less expensive than paper documents to produce, ship, store, retrieve, and use.

Among internal improvements to enhance the Center's microphotographic capabilities were: equipment modifications to permit direct reproduction of material from microfilm to microfiche, and from microfiche to microfilm; techniques for simultaneously filming documents on both microfilm and microfiche; and improved methods for reproducing paper documents from microform.

Relations with the Department of Commerce

During FY 1970, DDC updated and continued its agreement with the Department of Commerce for accomplishment of portions of the Center's workload by CFSTI. In addition to processing, announcing, and distributing unclassified and unlimited DoD reports, CFSTI also

served as collection agent for the \$3.00 service charge made for full-size or "hard" copies of technical reports.

In FY 1968, DDC obtained CFSTI assistance in processing unclassified and limited documents having "No Foreign" and "U. S. Government Only" distribution statements. Through FY 1970, the Clearinghouse provided the same services for these documents as for the unclassified and unlimited except that announcement of the documents and validation of requests were made by DDC.

IV. RESEARCH AND ENGINEERING MANAGEMENT INFORMATION SERVICES

R&T Work Unit Information System

One of the main information systems maintained in DDC, the Center's first operational priority, is the Research and Technology Work Unit Information System (R&T WUIS). It is an automated reporting system established within the RDT&E community of DoD to provide for rapid exchange of technical and management data about on-going work.

The WUIS data bank which is the heart of the system contains summaries describing both DoD in-house and DoD-Sponsored research and development. These summaries identify the organizations involved with the research, the DoD sponsors, subject coverage and description of the efforts, ultimate objectives, resource requirements and expenditures, the persons primarily responsible for the work, and many other elements of data. All of these data elements are placed in the computer, and retrieved in formats designed to serve the various needs of the scientists, engineers, and managers, in response to their requests for the information.

Considerable effort was devoted during FY 1970 toward more efficient collection of source data and overall improvement in the WUIS. A few of the areas in which effort was concentrated are summarized as follows:

a. Input. Management information is fed into the system from many sources. However, to be useful the information must be current. Timely updating is essential. To improve input, and subsequent output, much work was done with the sources to accelerate submission, improve accuracy, and decrease rejects.

Military service liaison representatives at DDC who know the problems and needs of the system visited their areas of responsibility to improve the timeliness and accuracy of summaries submitted to the Center. DDC further developed an experimental program whereby records which had not been updated within a specified period were called to the attention of contributors. Meetings also were arranged with contributor representatives to discuss specific data input problems. Monthly status reports of records submitted by each contributor were furnished for review by representatives of the sponsoring military service. DDC, in the meantime, realigned its work schedules and computer time to process periodic massive submissions of the new or updated summaries which resulted from these efforts.

Input during the fiscal year amounted to 13,057 new records and 78,271 changes or updates to those previously submitted. On 30 June 1970, the data bank contained a total of 55,524 records including 6,564 submitted by the National Aeronautics and Space Administration through cooperative programs.

b. Working Group. DDC chairs a WUIS Working Group comprised of representatives of organizations which submit summaries to the system and Center personnel involved with system management and operation. In addition to carrying out an aggressive program to improve the quality of the WUIS files, members of the Group worked closely in solving individual and common problems related to the system. The Group's efforts resulted in significant improvements in and changes to overall system operation.

c. Publications. Several publications concerned with improving the operation of the WUIS were prepared or revised for use by the information community and DDC. These included: DDC Remote On-Line Retrieval System Operator's Manual (DDCM 4185.3), R&T Work Unit Information System Data Input Manual (DSAM 4185.5), R&T Work Unit Information System U. S. Government Users Manual (DSAM 4185.4), and R&T Work Unit Information System Contractor Access Manual (DSAM 4185.6).

d. Output. Information in the WUIS is available to DoD components and other Federal agencies. The data are disseminated to Government agencies as standard or special reports, bibliography listings, or as recurring reports; and are compiled in many formats, usually as specified by the requester. Recurring reports, covering predetermined areas of user interest, are distributed at certain intervals which best satisfy the user's needs. Selected items are also furnished to Government contractors and grantees for use in pursuing their research activities.

The remote on-line retrieval system installed in FY 1970 is a significant improvement utilized by the Center to speed up processing of requests for WUIS information. An on-line search is made and results reviewed on a cathode ray tube display; then the summaries can be printed on the spot, or scheduled for later printing. During the year, many special urgent requests were processed through this system and replies furnished within a few hours.

In addition to being useful to DoD managers and project scientists, output from the WUIS has provided background information on many subjects to the Executive Office of the President, Congressional Offices, and other high-level activities.

Other Data Banks

Since inception of the WUIS, the information has been expanded and used in a variety of subsystem data banks to satisfy additional needs of the scientific and technical information community. Many of these subsystems were operational throughout the year to provide subject matter and formats unique to the requirements of the requesting activities. Some of these additional services are:

a. Committee on Academic Science and Engineering. The National Science Foundation (NSF) serves as the focal point for a Government-wide system of reporting on Government-supported research and engineering projects at academic institutions. DDC selects information from the data bank and provides it to NSF to assist in formulating statistics for programs, funds, and manpower involved in work done for DoD.

b. Science Information Exchange (SIE). Summaries concerned with research and development efforts which are unclassified and unlimited, or limited to U. S. Government access, are furnished for the SIE program monitored by the Smithsonian Institution. The majority of these summaries are available to the public through the SIE.

c. Studies and Analyses. DoD established a system and data bank at DDC to collect information on studies and analyses performed under DoD contract or grant. The six broad categories are: manpower and personnel, concepts and plans, operations and force structure, logistics, science and technology, and management. Output from the system is intended for use by all DoD elements contemplating a new study or analysis contract or grant to determine if similar work is in progress or has been done. In FY 1970, the system was expanded to include policy planning studies and foreign area social science research.

d. Relevancy of DoD R&D Projects. During FY 1970, DoD instructed the military services to review their R&D projects and efforts in light of the requirements of Section 203 of the Military Procurement Authorization Act. The act requires that DoD contracted research must be relevant to the basic DoD mission. The objective of the review was to identify, insofar as possible, those efforts which do not meet the relevancy requirements. DDC was established as the focal point for collecting and making available results of the review.

e. Special Data Banks. Several systems have been established, or are in development, to provide the Office of the Director of Defense Research and Engineering with many types of data for use in review, planning, and management of the overall DoD R&D program. Much of the data is available for fast retrieval through the DDC experimental on-line system. A remote terminal was placed at his disposal in the Pentagon.

Special Services and Projects

DDC performs many corollary functions in support of its basic role in the information community. Some are continuing; others are on a special or one-time basis. Those pursued during the year include:

a. Registration of Users. In order to avail themselves of information services offered by DDC, users must be registered at the Center. Procedures for accomplishing this are outlined in a Registration for Scientific and Technical Information Services of the Department of Defense Manual (DSAM 4185.3), revised in December 1969. Registration also establishes the user's eligibility for services available from Defense-sponsored Information Analysis Centers, major DoD technical libraries, and similar sources. A DoD Dissemination Authority List published by DDC keeps the information centers apprised of eligible users.

b. Referral Service. The Center maintains a data bank of specialized sources of scientific and technical knowledge. Most of these activities are either subject or mission oriented, and maintain large stores of information other than DoD data. When authorized users require information beyond the scope of DDC, the users are referred to these specialized sources through either direct contact or computer printouts as part of the DDC bibliography service.

c. Contractor Performance Evaluation (CPE) and Contractor Cost Reduction (CCR). A CPE data bank was operated to provide DoD procurement agencies with quick and comprehensive evaluation of contract performance by contractors. This service was expanded to include smaller development contracts under \$2 million. Requests for the data almost doubled during the year. Input to the CCR data bank increased about 40 percent. Specific queries concerning CCR were not numerous; however, this information was included in answer to CPE requests.

d. Defense R&D in the 1960's. To provide the information seeking community effective coverage of all DDC holdings of Defense-generated technical information announced during the 1960's, a well-organized package was designed that will be easily searchable and widely available. It will comprise a classified and an unclassified set of bibliographic citations and indexes, each consisting of two volumes covering five-year periods. The package will be processed on computer-output-microfilm equipment and will be available on easily stored microfilm. Release, for sale on an experimental cost recoverable basis, is expected in the second quarter of FY 1971.

e. Special Groups. DDC services to special groups included: information to the Blue Ribbon Defense Panel established to study the organization of DoD, its R&D programs, and procurement practices; assistance in plans for initiating a criminal justice reference library and information service in the National Institute of Law Enforcement and Criminal Justice; and cooperation with the Office of Assistant Secretary of Defense (Installations and Logistics) in exploring ways to facilitate Government and public access to and use of DoD patents.

V. DEVELOPMENT

Development Program

The Development Program Annex to DDC's Five-Year Operating Plan for FYs 1970 - 1974 was submitted to HQ DSA with the Plan in August 1969. Subsequently established resource allocations and other HQ DSA guidance required resubmission of the Plan and Annex in October 1969. Development objectives and supporting projects were outlined and presented in a format consistent with revised RDT&E Project-Subproject structure. First priority was placed on efforts related to continued development and operation of the Research and Engineering Management Information System and its related data banks. These efforts included development of experimental on-line direct access to information in the System to the degree that resources permitted. Second priority was placed on evaluation and refinement of selective documentation services available to DDC users.

On-Line Retrieval System Experiment

Successful system tests between the DDC computer and terminals at the Air Force Systems Command and the Naval Ship Research and Development Center were performed in June and July 1969. Testing with terminals at the National Security Agency and the Office of the Director of Defense Research and Engineering was completed later in FY 1970. These accomplishments linked six remote keyboard-display terminals, including two within DDC, to the central DDC computer facility for further tests and experimentation. The terminals, operating through the UNIVAC 1108 computer system, provided the first on-line direct access to the Research and Technology Work Unit data bank.

In December 1969, the entire Work Unit data bank direct file, the master data file of information pertinent to each Work Unit summary, became available for on-line retrieval. Soon thereafter, the system was expanded to provide access capability to the DDC technical report collection. This capability enabled the user to query the technical report inverted file for index terms and document numbers related to his area of interest.

Other improvements made in the system during the year provide a detailed logging capability, a significant reduction in core use requirements, a simplified yet vastly improved tutorial capability, and an increased flexibility in system functions. These changes mean a closer union between user and terminal, a more efficient computer operation, a better retrieval capability, and greater terminal accountability and control. As the year ended, DDC was also completing a technical report which highlights actions associated with the planning, procurement, and installation of terminal equipment for the system.

Selective Documentation Services

DDC continued to test and refine programs for announcing and distributing technical reports to a test community of users on an experimental basis. A detailed analysis of the effectiveness of each subprogram within the Program was completed and the findings will be used to guide future efforts. FY 1970 accomplishments and status of each subprogram are summarized as follows:

a. Group Announcement Bulletin (GAB). Participants in the GAB test received, for each Technical Abstract Bulletin (TAB) cycle, special announcements of technical reports contained in the TAB which were of specific interest to individual user groups. Program evaluation indicated that GAB costs, to both DDC and the users, were not offset by the benefits derived from its use. GAB service terminated with the distribution of the 15 June 1970 edition of TAB.

b. Automatic Magnetic Tape Distribution (AMTD). For each TAB cycle, organizations in the AMTD test were originally furnished magnetic tapes containing TAB-type announcement entries selected according to the users' subject areas of interest. Since the last quarter of FY 1969, however, each tape has contained all entries in the TAB edition. Test results showed that AMTD service is technically feasible and that it can be of significant value to those activities possessing the capability to use it.

The plan to provide AMTD service on a subscription basis to all interested activities was approved. The tapes will contain entries on all DoD reports accessioned, including those processed and distributed for DoD by the Clearinghouse for Federal Scientific and Technical Information. Subscription rates will be based on the costs of producing the tapes, and sale will be on an experimental basis. Magnetic tapes provided will conform to the USA Standard (Z39.2-1968) for Formatting Bibliographic Information Interchange on Magnetic Tape and the counterpart USA Standards Institute Standard (X3.4-1967) Code for Information Interchange.

c. Automatic Distribution of Documents (ADD). Prior to July 1969, users participating in the ADD test were supplied microfiche copies of those reports (except unclassified and unlimited) falling within their previously established Field and Group of interest profiles. In July 1969, DDC began converting the Field-Group profiles to customized search term profiles. This change was made in order to provide more selectivity in identifying and furnishing documents which were more closely related to user requirements.

A plan for phased extension of the service, on an operational implementation basis, to groups of users based on prior demand rates was adopted. As part of this plan, DDC will test the feasibility of expanding the program to include microfiche copies of unclassified and unlimited reports.

Developments in Automatic Data Processing

Following installation and acceptance testing of the UNIVAC 1108 computer system in FY 1969, actions for purchase of the system were completed in December 1969. Efforts in FY 1970 were concentrated on testing the related software and attaining full operational status of the complete system. Conversion from the EXEC I to the EXEC VIII operating system was accomplished successfully, but not without problems which caused some delay. The On-Line Retrieval System Experiment, a prime reason for procurement of the 1108, was initiated. The Text Processing System for direct input of basic, editing, and updating information from remote on-line terminals into the 1108 system was implemented.

By the end of the year, all of the Center's ADP programs and operations had been converted to the new system and formerly used ADP equipment had been released. Installation of more computer storage capacity and other refinements permitted the addition of several new data banks and test programs for overall mission and development expansion.

Microform Systems

DDC pursued many investigative and development efforts to give the Center and its users the benefit of improvements in the use of microform. Experimentation with a computer-output-microform conversion system shows significant potential value. A technique for improving the quality of hard-copy documents reproduced from microfiche, through intermediary microfilm, was placed in production status. The capability of providing documents in either positive (black on white) or negative (white on black) microfiche became a reality. Evaluation of microfiche reader-printer equipment resulted in the publication of a DDC technical report (Microfiche Viewing Equipment - AD 701 600) with photographs and descriptions of a variety of models marketed in the United States. Another technical report, An Interim Report of Computer-Output-Microfilm Activities and Experiences at the the Defense Documentation Center - AD 708 600, was also prepared.

One effort pursued during the year through contract was an undertaking to develop a prototype automated microfiche reproduction system for testing and use at the Center. During June 1970, DDC took action to immediately terminate the contract because of limited contractor progress and the anticipated cost to overcome technological problems. Another was a study for the design of a relatively low cost (\$3,000-4,000) microfiche storage and retrieval system for use by smaller DoD activities. Final reporting on this study, which will include a state-of-the-art survey and market analysis, is due in August 1970.

Language and Indexing Systems

A DDC technical report, Machine-Aided Indexing - AD 696 200, was issued during the year. Over 125,000 words of text were indexed. Work is now underway in revising the dictionaries and processing procedures. A major portion of work effort has been devoted to the creation of a type of synonym dictionary to control the final posting points created by the system. Representatives of the Lunar Receiving Laboratory of the Manned Spaceflight Center in Houston have begun to adapt this system for their new collection of moon geology reports resulting from the Apollo Program.

An initial model of 8,000 terms derived from the DoD Thesaurus of Engineering and Scientific Terms and the DDC vocabularies was developed. Additional references were added to give a current data base of 11,500 terms. In addition, effort has been devoted to creating programs to generate, update, and print the synonym dictionary being developed in the Machine-Aided Indexing project. This dictionary will form one of the major portions of the Natural Language Data Base.

Toward the end of the year, a contract was awarded for the development of a prototype Natural English Preprocessor System. This system will contain a set of sophisticated programs which will permit on-line system users to express themselves more easily when interrogating the computer.

Primary Distribution Experiment

In April 1970, the Office of the Director of Defense Research and Engineering requested that DDC proceed with plans for an experimental project involving primary distribution of DoD RDT&E documents. The overall objective of the experiment is to determine the feasibility, from a cost and effectiveness viewpoint, of centralizing primary distribution of such documents. During May 1970, the Center proposed a comprehensive plan and schedule for conducting the experiment in FY 1971. As of the end of the fiscal year, further actions on the project were dependent upon approval of the plan and coordination among DoD elements involved.

VI. CUSTOMER RELATIONS

A dynamic and well executed Customer Relations Program is a vital communications link between the customer-contributor population and DDC line elements. During FY 1970, the Center implemented a new Customer Relations Operational Plan designed to keep user activities abreast of innovation in the field of scientific and technical information.

The plan includes a shift in emphasis in the DDC assistance visitation program from visits to individual user organizations to a customer community oriented program. This shift was aimed at reaching user and potential user activities on a group basis. Further, the plan calls for increased emphasis on the importance and uses of information contained in the Center operated DoD Research and Technology Work Unit Information System.

During the year, DDC continued its comprehensive field liaison program. Efforts were concentrated on reaching specialized audiences such as principal investigators of research projects, personnel associated with Defense Contract Administration Services, and the staffs at Defense-sponsored Information Analysis Centers. Greater use was made of regional conferences for contacting customer representatives. These conferences, coupled with DDC participation in Federal Procurement Conferences, offered liaison officers an opportunity to meet with larger numbers of these representatives to discuss DDC programs and services.

In December 1969, at a library workshop conducted in the Republic of the Philippines, DDC presented a specialized briefing on DoD and other Federal scientific and technical information resources. Technical information specialists and librarians representing DoD activities in Thailand, Vietnam, Guam, Japan, Okinawa, Taiwan, Korea, and the Philippines attended. The occasion was the first such DDC presentation in the Far East; and, as a result, the Center has been receiving requests from those activities for DDC services.

Military liaison officers assigned to DDC by the Army, Navy, and Air Force coordinated areas of mutual interest between their respective service and the Center. Their major efforts were concentrated on updating data in the Research and Technology Work Unit Information System and providing close liaison with activities participating in experimental projects within the DDC Development Program.

In the interest of scientific and technical information exchange between governments, DDC maintained close liaison with embassies of many foreign countries. Approximately 100 requests per month from foreign sources for DDC services were coordinated with the embassies. Additionally, the Center was host throughout the year to foreign visitors who were seeking information about DDC systems and procedures for possible application in their countries.

At the close of the year, plans had been completed for production of a new color-sound motion picture depicting the Center's current programs and services. Similarly, construction was progressing on a major DDC exhibit for use by field liaison personnel.

VII. MANAGEMENT

Organization

On 1 July 1969, the DDC Office of the Security Officer was disestablished concurrently with the establishment of a consolidated Office of Security Support within the DSA Administrative Support Center. The DDC functions related to information and personnel security were transferred to the newly activated office. Functions related to physical security, visitor control, and Provost Marshal matters were retained by DDC and assigned to the Office of Installation Services. These actions were taken as part of a HQ DSA plan to consolidate and centralize security services common to all DSA activities on Cameron Station.

On 1 November 1969, an Equal Employment Opportunity Officer was designated.

An On-Site Organizational Review of DDC was conducted by HQ DSA toward the close of FY 1969. Applicable recommendations were implemented by DDC during the first half of FY 1970. Actions included changes to the DDC Organization, Missions, and Functions Manual to reflect, where applicable, the standard function descriptions and organizational patterns prescribed for all DSA Field Activities; and consolidation of the Office of Customer Relations elements into a single organizational entity.

Financial

As of the end of FY 1970, DDC had net obligations of \$12,728,000 in the following Object Classes:

Personal Services and Benefits.....	\$ 7,149,000
Travel.....	63,000
Transportation of Things.....	7,000
Rentals, Communications.....	564,000
Printing.....	302,000
Other Services (including CFSTI support).....	2,319,000
Supplies.....	228,000
Equipment (including major ADPE).....	<u>2,096,000</u>
Total	\$12,728,000

A goal of \$325,000 in FY 1970 was established for DDC under the DoD Cost Reduction Program. Claims audited and approved by HQ DSA totaled \$596,490 for the year. The major portion of this reduction was in the area of automatic data processing equipment utilization.

The Zero Defects Program accomplishments during FY 1970 were 28 Error Cause Identifications submitted and 22 adopted. A new

incentive for greater participation, developed during late FY 1970 to be instituted in FY 1971, was that of cash awards for the first and second most noteworthy Error Cause Identification submitted each month.

DDC Service Charges

Prior to 1 July 1968, all DDC services and products were provided at no cost to the user. Effective on that date, DoD imposed a \$3.00 per copy service charge on full-size paper copies of documents which are available on microfiche. Program guidance for FY 1971 calls for service charges on two additional products beginning during that year. These are consolidated indexes and announcements on 16-mm film of Defense R&D reports announced during the 1960's, and tapes provided through the Automatic Magnetic Tape Distribution program.

Manpower

DDC began FY 1970 with an authorization of 572 civilian employees for the first three quarters and a yearend authorization of 562. Actual civilian strength was reduced from 570 at the beginning of the fiscal year to 558 at yearend. The military personnel authorization remained at four throughout the year; an executive officer and one liaison officer each for the Army, Navy, and Air Force.

The Center again supported the President's Summer Employment of Disadvantaged Youth Program by employing six youths for the summer of 1970. The sensitivity of DDC operations together with limited working areas for assignment of personnel without security clearances restricted the number that could be employed.

Performance Measurement

The computerized DDC Manpower Performance Reporting System installed in FY 1969 was refined during FY 1970. The system is designed to record and measure manpower costs for each organizational element and functional work area for management review and control. The system will parallel the RDT&E Project-Subproject Structure used for budgeting and five-year planning, and will provide more comprehensive data for these purposes as well as for cost reporting.

In accordance with HQ DSA schedules, initial coverage under the DoD Integrated Management Engineering System was completed during the year.

Emergency Plans

A complete revision of the DDC Field Activity War and Emergency Support Plan (FAWESP) was published during the year. The FAWESP was tested during the planning phase of Exercise HIGH HEELS 69 and during periodic exercises conducted under the DSA War and Emergency

Support Plan Exercise Program. Applicable portions were also tested during the emergency created by the U. S. Postal workers strike in March 1970. Test results proved the adequacy of the FAWESP for DDC operations under emergency conditions.

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13. ABSTRACT The summary presents highlights of the more significant activities and achievements of the Defense Documentation Center during FY 1970 including: <u>DDC and the Scientific and Technical Community.</u> The DDC role in the DoD Scientific and Technical Information Program continued to expand from providing secondary distribution of Defense-related technical reports to furnishing a coordinated mix of scientific, technical, and management information products and services tailored to the needs of users of the information. <u>DDC Mission Responsibilities.</u> Basic mission responsibilities are summarized as: (1) acquiring, storing, announcing, retrieving, and providing secondary distribution of results of RDT&E performed or sponsored by military departments and other DoD components, (2) operating the central DoD computer-based data banks of technical and management information resulting from Defense-related efforts in research and technology, and (3) planning and executing a development program to introduce new or improved systems and techniques related to information transfer. <u>Operational and Developmental Activities.</u> The summary describes activities and accomplishments during the year including those in the areas of: (1) technical report services, (2) research and engineering management information services including a variety of data banks and special services, (3) on-line retrieval, (4) selective documentation services, (5) automatic data processing, (6) microform systems, (7) language and indexing systems, and (8) supporting customer relations and management functions.			

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*Defense Documentation Center						
Scientific and Technical Information						
UNIVAC 1108 Computers						
Announcement Bulletins						
Microfiche						
Department of Commerce						
Management Engineering						
Work Unit Information System						
Data Storage Systems						
On-Line Systems						
Distribution						
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