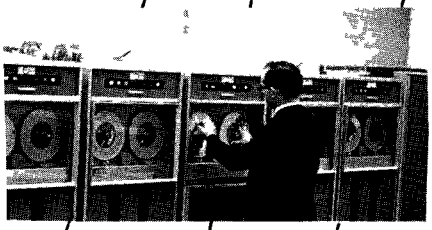
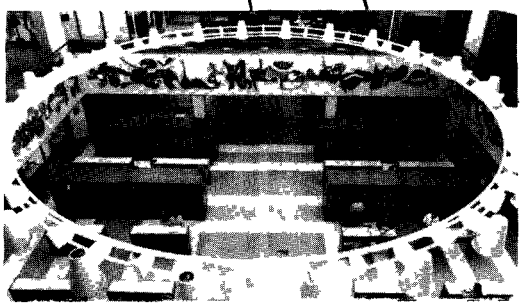
U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE - Public Health Service

NATIONAL LIBRARY OF MEDICINE

Annual Report / 1966





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FY 1966

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Martin M. Cummings, M.D.	Director, National Library of Medicine

NATIONAL LIBRARY OF MEDICINE

ANNUAL REPORT

for the

FISCAL YEAR 1966

December 1966

8600 Rockville Pike
Bethesda, Maryland 20014

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KEY PERSONNEL OF THE NATIONAL LIBRARY OF MEDICINE

June 30, 1966

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Coordinator for Dental Affairs	Dr. Kenneth C. Lynn
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Public Information Officer	Mr. Robert Wilson
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Staff Assistant	Mrs. Maxine Hanke
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Chief	Miss Mary Corning
Research and Training Division	
Chief	Dr. Carl D. Douglass
Operations Officer	Mr. David Kefauver
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Special Assistant for Information Centers	Dr. Leonard Karel
Medical Subject Headings Staff	
Head	Dr. Norman P. Shumway
Drug Literature Program	
Head	Miss E. Winifred Sewell
Reference Services Division	
Chief	Mr. Samuel Waters
Deputy Chief	Mr. Edward A. Miller
Head, Reference Section	Mr. Charles A. Roos
Head, Loan and Stack Section	Mr. Thomas R. Cassidy
Head, Photoduplication Section	Mr. Svend A. Andersen
Acting Head, Preservation Section	Mr. Thomas R. Cassidy
Bibliographic Services Division	
Chief	Dr. Clifford Bachrach
Head, Index Section	Mr. Constantine Gillespie
Head, Search Section	Miss Charlotte Kenton

Information Systems Division	
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Information Systems Evaluator	Mr. Frederick W. Lancaster
Head, Programming Section	Mr. Ronald Bogart
Head, Operations Section	Mr. Daniel Belsole
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Technical Services Division	
Chief	Mr. James P. Riley
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Head, Selection and Searching	Dr. Galina Zarechnak
Head, Acquisition Section	Miss Elizabeth Sawyers
Head, Cataloging Section	Miss Emily V. Wiggins
History of Medicine Division	
Chief	Dr. John B. Blake
Deputy Chief	Dr. Peter D. Olch
Head, Catalog Office	Mr. Richard J. Durling

FOREWORD

> The Nation's medical libraries are a vital link between medical education, practice and research. . .
>
> Lyndon B. Johnson

Fiscal Year 1966 was a period of continued growth for the National Library of Medicine. Services were expanded, and staff and budget were increased in response to increased demands. Library programs were evaluated and in some cases modified or strengthened to meet future needs.

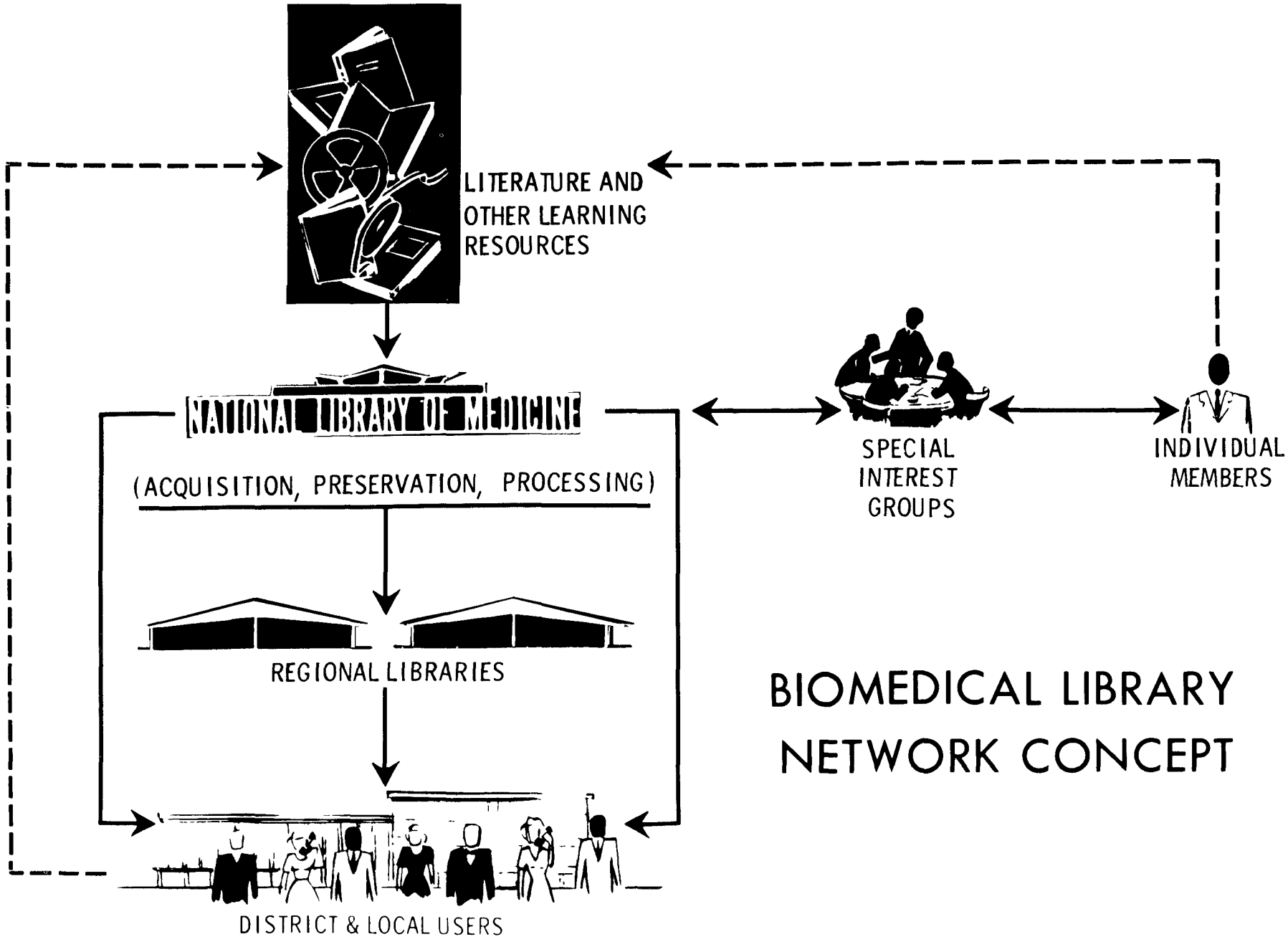
High point of the year was the passage by the eighty-ninth Congress of the Medical Library Assistance Act (Public Law 89-291), signed into law by President Johnson on October 22, 1965. The new law created broad responsibilities for the National Library of Medicine to help the Nation's medical libraries provide vital services to medical education, research and practice. The impact of the legislation will be far reaching.

The Library staff developed comprehensive plans to improve and accelerate the flow of biomedical information. A five-year program design was prepared, incorporating recommendations of the National Library of Medicine Board of Regents. The plan calls for the Library to provide support and guidance for the development of the existing informal system of biomedical libraries into a responsive, efficient national network (Fig. 1).

Network development will begin under the impetus of the Medical Library Assistance Act, with funds being made available to the Nation's medical libraries for improved facilities, resources, training programs and research in information handling technology. Procedures have been established for grant application, review, and approval. Several research, training, special scientific projects, and library resources grants have already been awarded.

NLM intramural activities to provide centralized resources for the network (Fig. 2) were expanded in Fiscal Year 1966. The Library is placing a new emphasis on accumulating, controlling, and disseminating broad categories of information in new forms (graphic images, audiovisual materials) in addition to traditional forms of published information.

Further decentralization of NLM's computer-based MEDLARS (Medical Literature Analysis and Retrieval System) during the past year represents an important step in network development.



BIOMEDICAL LIBRARY NETWORK CONCEPT

Fig. 1

CENTRALIZED ACTIVITIES

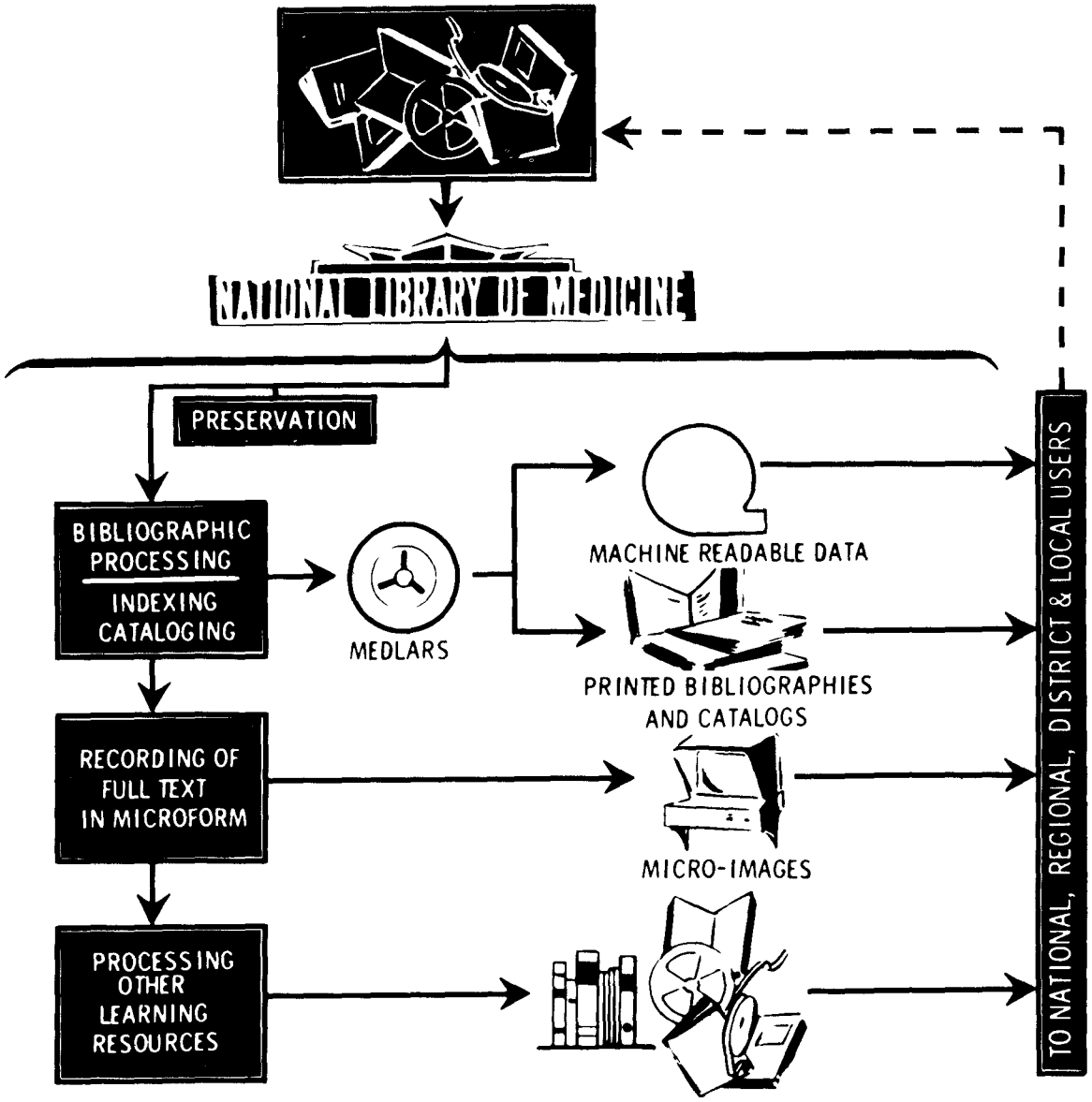


Fig. 2

Supplementing the capability at NLM and the search centers already established at the University of California at Los Angeles and the University of Colorado in Denver, MEDLARS search centers are now becoming operational at the University of Alabama, Harward University and the University of Michigan. (Fig. 3)

To provide a centralized cataloging service for medical libraries and to speed their acquisitions programs, NLM introduced a new computer-produced publication - The National Library of Medicine Current Catalog. Issued biweekly since January 1966 with quarterly and annual cumulations, the NLM Current Catalog lists citations to publications cataloged by the Library. Complete bibliographic data are included in each citation. The NLM Current Catalog will effect considerable savings in manpower and dollars for the Nation's medical libraries.

During the past year, NLM began publishing the annual cumulation of citations appearing in the Library's monthly Index Medicus. Cumulated Index Medicus, formerly published by the American Medical Association, is now published by NLM through the Government Printing Office. It is printed from film copy provided by the Library's computer and prepared by GRACE, NLM's computer-driven Graphic Arts Composing Equipment.

With increasing needs of scientists and clinicians for information on drugs, the Library was designated to join with other Federal and private organizations in a major effort to improve the communication of information on drugs and chemicals. NLM's Drug Literature Program participated in the development of several cooperative projects designed to support more efficient collection, processing, and dissemination of the published literature on the effects of drugs on man and animals. A pilot computer-produced toxicity bibliography was compiled and distributed to a group of experts for critical review.

The increasing volume of published basic and applied information in the health sciences has overloaded existing information channels. Requests for information from scientists, practitioners, and educators continue to increase. During Fiscal Year 1965, NLM provided over 16,000 more individual reference, circulation, and bibliographic services than in the previous year, including an almost 100 percent increase in the number of computer-produced demand bibliographies (from 1,623 in FY 65 to 3,035 in FY 66). A total of 265,000 reference and circulation transactions was recorded, representing a 6 percent increase over the previous year.

The first phase of NLM's program to accelerate the transmission of information to health professionals was implemented late in Fiscal Year 1966. The Library installed teletypewriter equipment, and established a format for using the facility to speed up the transaction of interlibrary loan requests.

DECENTRALIZATION OF MEDLARS

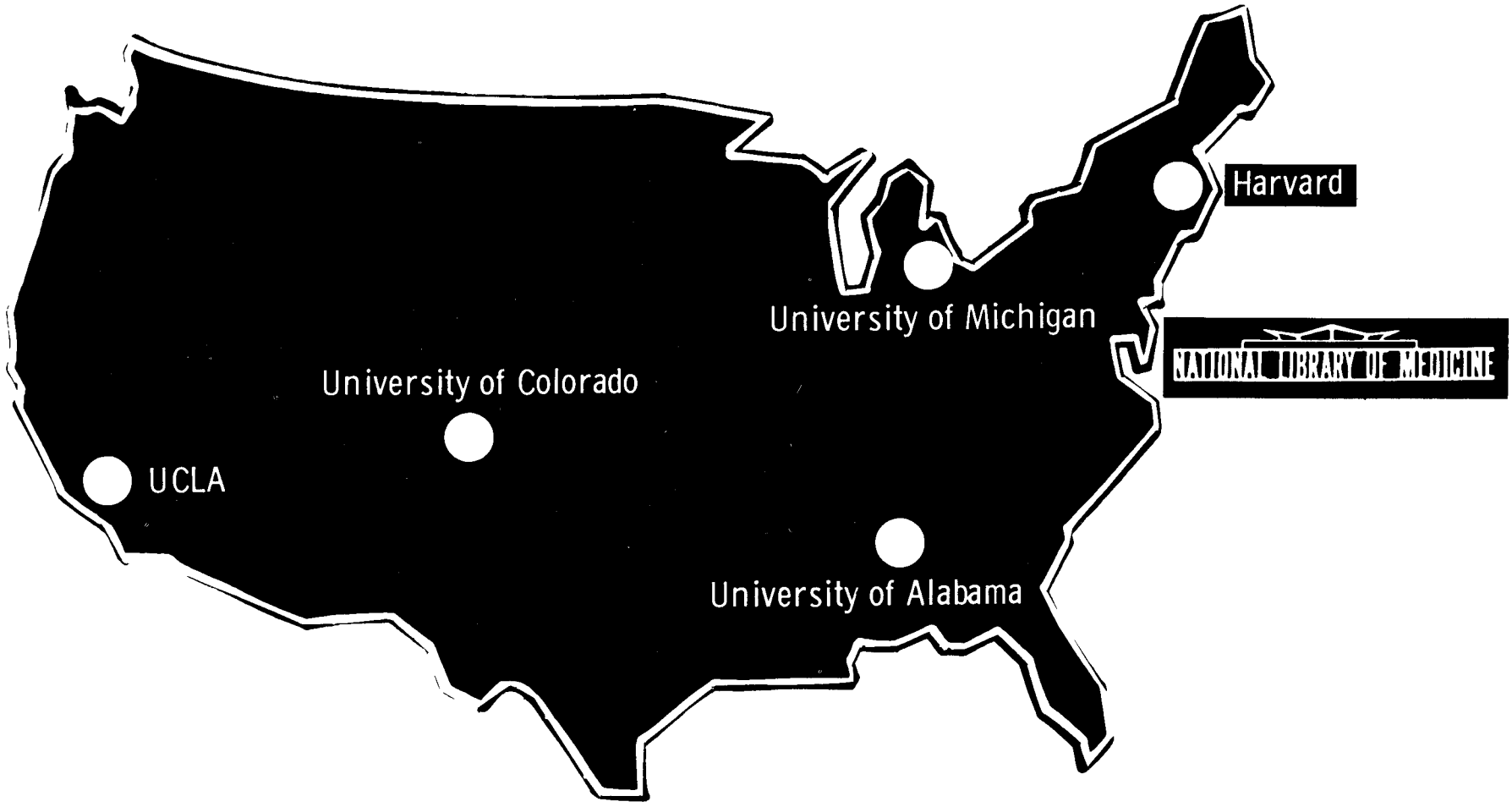


Fig. 3

A report by a National Bureau of Standards team and a conference of authorities from industry and government led to the expansion of NLM's programs of microfilming biomedical literature which is endangered by paper deterioration. Pilot contracts were awarded for the microfilming of 2 million pages of journal literature supplementing NLM's in-house microfilming which was expanded to preserve 2 million pages per year.

The staff of the NLM is confident that the Library's programs are making significant contributions to the advancement of medical and related sciences, ultimately to improve the health of the people of the United States.

Martin M. Cummings, M.D.
Director, NLM

CHAPTER I

O F F I C E O F T H E D I R E C T O R

Medical Library Assistance Act of 1965. The Medical Library Assistance Act of 1965 (PL 89-291) represents a milestone in the evolution of the National Library of Medicine and a new step in Federal support for comprehensive library-based biomedical information services.

In the Act, Congress "finds and declares that (1) the unprecedented expansion of knowledge in the health sciences within the past two decades has brought about a massive growth in the quantity, and major changes in the nature of, biomedical information, materials, and publications; (2) there has not been a corresponding growth in the facilities and techniques necessary adequately to coordinate and disseminate among health scientists and practitioners the ever-increasing volume of knowledge and information which has been developed in the health science field; (3) much of the value of the ever-increasing volume of knowledge and information which has been, and continues to be, developed in the health science field will be lost unless proper measures are taken in the immediate future to develop facilities and techniques necessary to collect, preserve, store, process, retrieve, and facilitate the dissemination and utilization of, such knowledge and information."

To strengthen, develop and support the nation's biomedical library system, the Medical Library Assistance Act authorizes appropriations of $10,000,000 annually for each of four years beginning in FY 1967 for grants to assist in meeting the cost of construction of medical library facilities and $65,000,000 over a five-year period beginning in FY 1966 for other support programs including: $1,000,000 per year for grants to individuals and institutions for training in medical library and information sciences; $500,000 annually for grants to support physicians and other health scientists in the compilation of existing, or writing of original, contributions relating to advancements in the health sciences; $3,000,000 a year for grants and contracts to support research in medical library and related information sciences and for development of new techniques and systems for improved processing and dissemination of biomedical information; $3,000,000 annually for grants to improve and expand the resources - including library materials, services, equipment and technologies - of biomedical libraries and related institutions; $2,500,000 per year for grants to existing biomedical libraries to enable them to serve as regional medical libraries for the geographic areas in which they are located; $1,000,000 per year for grants and contracts to support biomedical publications; and $2,000,000 annually to establish and operate regional branches of the National Library of Medicine in areas where there are no existing medical libraries adequate to serve the needs of health scientists in those areas.

The Library prepared and defended a supplemental appropiation request to begin implementation of some of the programs authorized by the Act during fiscal year 1966. $4,175,000 was made available in a supplemental appropriation act for fiscal year 1966, and the Library began implementation of the Act.

Board of Regents. The Board of Regents held three meetings during the year: November 15-16, 1965; March 21-22, 1966; June 23-24, 1966. New members appointed were Dr. William B. Bean, Professor and Chairman of the Department of Internal Medicine at the State University of Iowa, and Dr. Stewart G. Wolfe, Professor and Chairman of the Department of Medicine, University of Oklahoma, replacing Drs. Norman Q. Brill and Saul Jarcho. Dr. Hubbard, Dean of the University of Michigan Medical School, continued as elected Chairman.

A principal action at the November meeting was the adoption of the Board's Advisory Report on Policy. The Board recommended that the Library, in addition to being a primary resource for collecting, organizing, and distributing recorded information relevant to the national health effort, also assume a central role for the multiple specialized health information centers designed to meet categorical needs. The Board also recommended that the Library function as the central component of a national biomedical information network and that it assume leadership in the research, development, and coordination necessary to the evolution of this decentralized national biomedical information system. This Advisory Report on Policy was transmitted to the Surgeon General in December, and approved by him. See Appendix XXI for the text of this report.

With the passage of the Medical Library Assistance Act, the Board acquired additional statutory responsibilities as the National Medical Libraries Assistance Advisory Board. At its November meeting it reviewed its new role and at its March 1966 meeting it took its first official action, reviewing and recommending to the Surgeon General draft regulations and policies guiding the implementation of the Act.

Exercising its program review and policy establishment responsibilities, the Board was involved with NLM's Five-Year Program Plan; the establishment of MEDLARS search centers; MEDLARS evaluation; journal selection for the Index Medicus; relationships with COSATI and the Office of Science and Technology; graphic image storage and retrieval, and continuing education. Individual members of the Board participated in site visits during the year to Israel, India, and Korea.

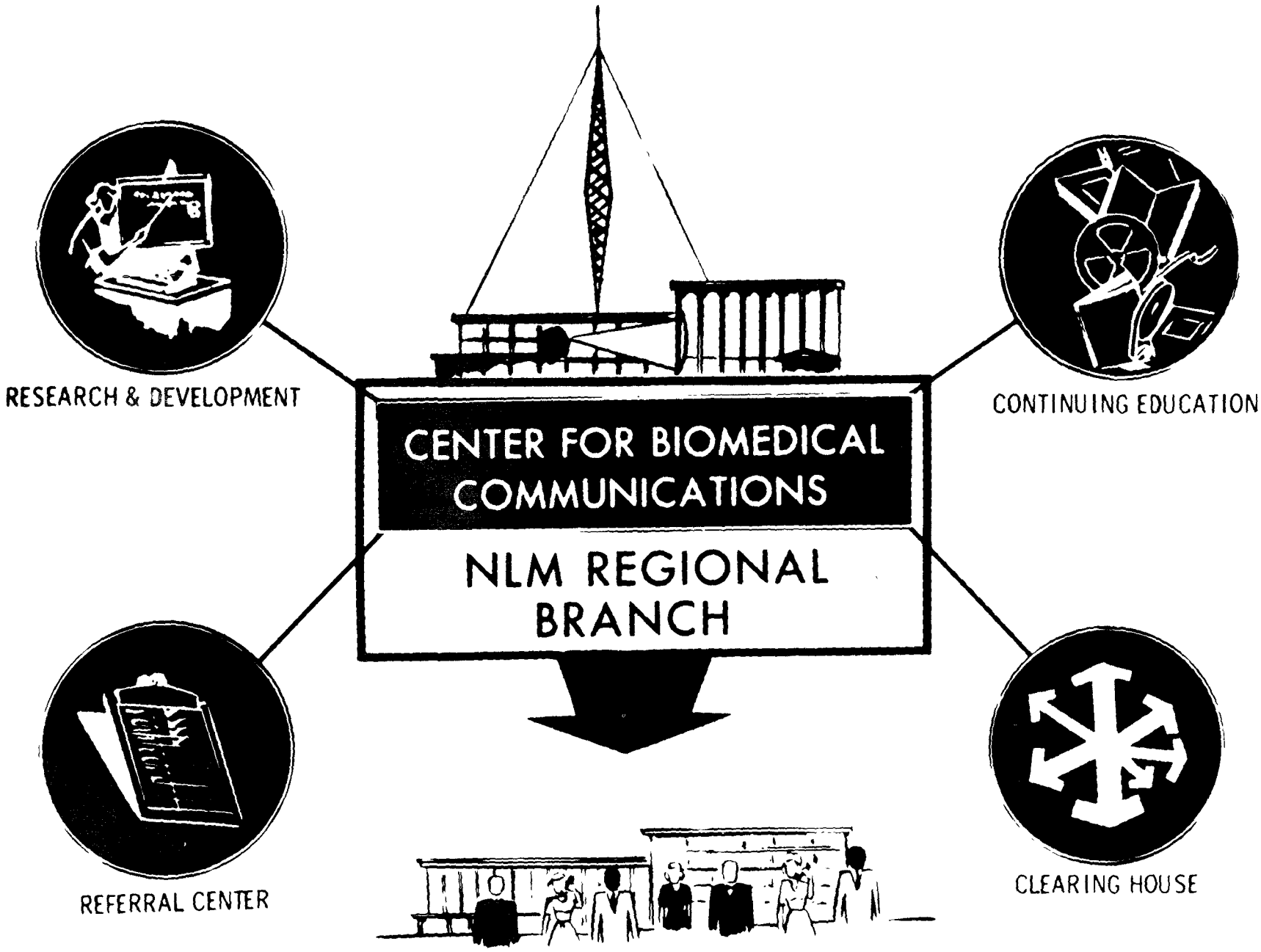

RESEARCH & DEVELOPMENT
CONTINUING EDUCATION
CENTER FOR BIOMEDICAL COMMUNICATIONS
NLM REGIONAL BRANCH
REFERRAL CENTER
CLEARING HOUSE

Fig. 4

NLM Five-Year Program Plan Design. The Library staff prepared a comprehensive five-year program plan outlining the steps required to forge the advisory recommendations of the Board of Regents to the Surgeon General into an operating plan and to carry out the programs authorized by the Medical Library Assistance Act of 1965. The plan describes NLM programs designed to fulfill NLM's role in improving and accelerating biomedical communications through development and support of a national biomedical library network consisting of local, regional, and national libraries.

In addition to financial assistance authorized by the Medical Library Assistance Act of 1965, the NLM will assist in the support of the network with direct services through NLM's facilities and programs. NLM will develop and operate a new national health information clearinghouse and referral system which will encompass important unpublished biomedical information and useful learning resources for medical research, education and practice. A new Center for Biomedical Communications will be established to provide: (1) facilities for research and development in information science and communications related to medicine, (2) a base for developing new instruments and testing new techniques to be used in systems of continuing education for health practitioner, and (3) a model for regional library services, including the distribution of continuing education materials to the surrounding geographic area. (Fig. 4)

The five-year plan was reviewed and accepted by the Board of Regents and the Surgeon General.

MEDLARS Centers. To increase the power and productivity of MEDLARS and provide for demonstration and testing under field conditions, a program to decentralize the search and retrieval capability of the system was initiated in FY 1965. Contracts were awarded to the University of California at Los Angeles and the University of Colorado to operate MEDLARS retrieval centers using duplicate MEDLARS tapes on local computer equipment to provide bibliographic search services to users in their geographic area. The UCLA contract also included converting the MEDLARS search and retrieval computer programs for use on equipment not directly compatible with the NLM's computer.

During FY 1966 geographic distribution of MEDLARS demand searching was expanded to a total of five centers. These centers will be fully operational in FY 1967. Also in FY 1966, search services were provided on an individual agreement basis to federal and non-federal institutions, and MEDLARS tapes were sold at the cost of tape conversion and copying to three educational institutions.

Current Catalog. The Library reached the first major milestone in automating its technical services on January 1, 1966, with the publication of the computer-generated biweekly Current Catalog. The biweekly publication with quarterly and annual cumulations makes NLM cataloging available to all medical libraries in the shortest possible time, and is intended to minimize duplication of effort in cataloging. The quarterly cumulation makes the Library's cataloging readily available for retrospective searching.

The NLM Current Catalog has maintained an "on-time" schedule since its initiation. The six months' experience during fiscal year 1966 has indicated wide acceptance and use by medical librarians.

New Computer System. Five years have passed since the contract for the design of MEDLARS was let in 1961. As a system, planned and installed during a period of rapid increase in computer technology, MEDLARS antedates random-access and on-line capabilities which recent developments have made feasible. With rapid increases in volume and kind of NLM's computer-generated information services, it was recognized that a new computer system with very large capacity, on-line access capability, and random access storage devices must be provided in the near future.

In June the Library awarded a contract to the Auerbach Corporation to develop performance requirements and general specifications for the new computer system. The performance requirements will accommodate: (1) an expansion and improvement of MEDLARS services, (2) an on-line input system to MEDLARS to permit direct communication between indexer and computer; (3) an automated acquisition and cataloging system, (4) a graphic image storage and retrieval system closely linked to the MEDLARS computer search capability; (5) a drug literature program with chemical search capabilities added to MEDLARS; and (6) development of an intramural research and development program in information retrieval and scientific documentation.

At the end of fiscal year 1966, it was estimated that the design for the new system would be completed and the equipment installed in late fiscal year 1968.

Paper Preservation and Graphic Image Storage and Retrieval. All libraries with large research collections and archival responsibilities face the loss of a large proportion of their resources due to the rapid deterioration of the paper on which publications are printed. In paper manufacturing used during the last 100 years the wood pulp is treated with chemicals containing an excessively high residual acid content which renders the finished paper brittle.

Much of the paper becomes extremely fragile -- so fragile that many publications must be withdrawn from circulation to avoid irreparable damage. Unfortunately, considerable information in the NLM collection has already been lost. About five million pages are critically deteriorated, and an additional 32 million pages are in such poor condition that even one-time use will probably result in losses.

In fiscal year 1966 the Congress appropriated $220,000, in addition to the amount requested in the President's Budget, to serve as a base for a microfilm preservation program. In November 1965, a Graphic Image Storage and Retrieval Conference was held in Bethesda to consider the results of a collaborative study by the NLM and the National Bureau of Standards of the Library's photoduplication system requirements. On the basis of information and specifications in the study report and the recommendations of the conference, the NLM accelerated its paper preservation program, filming deteriorated materials on 35 millimeter reel film. If necessary, the information can be converted to another medium for incorporation into a new graphic image storage and retrieval system. Two pilot contracts were let for the filming of approximately one million pages each. Production for preservation purposes in the NLM's own photoduplication plant has been increased to preserve one and a half million to two million pages per year.

Continuing Education. Special attention was focused during the year on the Library's role in continuing education of the health professions. The position of Continuing Education Officer was established, and filled by a medical officer, Dr. Burnet Davis, in October 1965.

In January 1966 an Ad Hoc Consultant Group was called together to consult with the Director and his staff regarding the Library's role in continuing education. During 1½ days of deliberations, recommendations were developed which have since served as program guidelines.

These recommendations placed emphasis on:

Support of programs aimed at developing the capacity for independent learning among professional students;

Improvement of the resources and strengthening the role of community hospital libraries in serving practitioners;

Research and development on techniques for reaching the practitioner through library resources, including new learning resources such as visual materials and programmed instruction;

Support of one or more demonstration centers for developing and testing new techniques in the context of an active medical complex;

Training of specialized information agents, library technologists, and research workers in educational and communication techniques;

Development and testing of a usable abridged Index Medicus.

Following the guidelines and stimulus of the consultant group, the Continuing Education Officer identified a number of activities in both the intramural and extramural programs of the Library which contribute to continuing education, and worked with Library staff to maximize their contribution. For example, efforts were made toward improvement of the recurring bibliographies and literature searches produced and published directly by the Library or in cooperation with other agencies or organizations.

The Library's major resource, however, for contributing to the improvement of continuing education programs was identified in the extramural programs authorized by the Medical Library Assistance Act of 1965. For example, the construction and resource support grant programs can encourage provision of space, equipment, and commitment of staff resources to continuing education. The research and training grant program can encourage and support projects to improve techniques and skills in this area. In both of these programs close working relationships are needed and are being developed with the Division of Regional Medical Programs of the National Institutes of Health. At the same time, the Continuing Education Officer worked closely with extramural program staff in providing consultation and staff assistance regarding projects in this area.

Committee on Scientific and Technical Information. Throughout the year the Director attended meetings of the Committee on Scientific and Technical Information (COSATI) of the Federal Council on Science and technology as an observer, supplementing the work of Dr. Ellis Johnson, the Departmental representative, and Dr. F. Ellis Kelsey, his alternate.

The Director served on the COSATI Panel on International Information Activities. Mr. Charles Austin was a member of the Panel on Information Science and Technology, and Mr. Paul Redmer was a member of the Panel on Operational Techniques and Systems.

COSATI Report on Document Handling Systems. Based on extensive studies by Systems Development Corporation, a COSATI report issued in November 1965 called for the development of national document handling systems in science and technology under the leadership of the Office of Science and Technology. The report was accepted by the Federal Council on Science and Technology and referred to the National Science Foundation for further study relating to its implementation. As the agency with

responsibilities for developing national document handling systems in the biomedical sciences, the National Library of Medicine has an active role to play. The Library's broad objectives, as described in its Five-Year Program Plan, are compatible with the document handling functions proposed in the COSATI report.

Herner Report. In endorsing the Medical Library Assistance Act, the Bureau of the Budget expressed uncertainty as to the possible future course of development of biomedical libraries in view of rapid advances being made in techniques for the indexing, storage, and retrieval of information. The BOB requested a study of future biomedical library needs, at the same time recommending deferment of a program of medical library construction until 1967 to permit time for the completion of the study. The Office of Science and Technology was designated to implement this study. The Office of Science and Technology assembled a panel of advisers, drafted the specifications for the study, and arranged through the National Science Foundation for a contract with Herner and Company of Washington, D. C. A preliminary version of the Herner study was received and reviewed in February. Following discussions with Office of Science and Technology, the study was remanded for further development.

Conducted concurrently with the Library's development of its Five-Year Program Plan, the Herner report differed in several particulars. A fundamental difference lay in the approach to a national system, conceived by the Library to develop through cooperative planning from existing non-federal institutions, and by Herner to be created and managed by the Federal Government. A revision of the Herner report was in progress at the end of the year.

Federal Library Committee. The Federal Library Committee was established under the joint auspices of the Bureau of the Budget and the Library of Congress in July 1965 to consider policies and problems relating to Federal libraries. The National Library of Medicine is a permanent member of the Committee. The Committee operates through several task forces which conduct inquiries into various aspects of Federal library operations. During the year various members of the NLM staff participated in these task forces. Mr. Scott Adams served as Chairman of the Task Force on Mission and Standards; Mr. Samuel Lazerow and Miss Elizabeth Sawyers served on the Task Force on Procurement Procedures; Mr. Paul Redmer on the Automation Task Force; Dr. David Kronick and Mr. Edward Miller on the Interlibrary Loan Task Force, and Dr. Louis Gerber on the Acquisitions and Statistics Task Force.

Library Surveys. In accordance with a Presidential commitment made to the Government of South Korea, the Agency for International Development requested the services of the National Library of Medicine in investigating library resources for an expanded program of medical education in Korea. Mr. Scott Adams, joined by two members of the Board of Regents, Dr. William N. Hubbard, Jr., and Dr. Alfred A. Gellhorn, visited Korea medical schools in May 1966. Mr. Adams submitted a report calling for AID action in assisting the Korean medical schools to develop their libraries. In addition, Mr. Adams visited Vietnam to review with AID officials the implementation of their plans for an enlarged medical library at the University of Saigon.

Public Information and Publications. The position of Assistant to the Director was filled in February 1966 by Mr. Gerald N. Kurtz. This office has broad responsibilities for public information and publications. Mr. Daniel Carangi joined the Library staff as Exhibits Director, replacing Mr. Robert Cohen, and a new position, Staff Assistant for Publications Management, was established and filled by Mr. Robert Mehnert.

In the latter part of the fiscal year, public information and publication activities were reorganized and a broad information program was planned to provide widespread dissemination of news about Library activities to all communications media. National magazines have been contacted about feature stories and a possible documentary program has been discussed with a TV network.

To prepare a progressive public information program, however, it has been necessary to revise, redesign and produce up-to-date basic information materials. A new Library brochure, film, and major exhibit have been prepared and are now in production. A new Library symbol, or logotype,

will appear on all new publications and exhibits. Traditional information channels have been utilized by sending releases to the press and biomedical communications media on important Library developments. During fiscal year 1966, announcements were released on the passage of the Medical Library Assistance Act, key staff appointments, and exhibits at NLM.

Exhibitions at NLM in the past year, set up with the assistance of the Information Office, included presentations on Conrad Gesner, Leonardo da Vinci, the Hollywood film, "Fantastic Voyage," and Medical Symbolism. An NLM exhibit shown at the American Dental Association annual meeting in Las Vegas received an award for excellence.

The position of Tour Guide Coordinator was filled in FY 1966 by Mrs. Hilda Fried. Tours of the Library have been arranged and conducted for approximately 2,700 visitors.

A ceremony was held at NLM on June 24 honoring Dr. Paul Dudley White. A portrait of Dr. White was presented to the Government, and was accepted by Dr. William H. Stewart, Surgeon General. The ceremony was attended by the NLM Board of Regents and the National Advisory Heart Council.

The responsibility for the management and promotion of publications was transferred to the Office of the Assistant to the Director in the past fiscal year. The promotion of publications has become especially important with publication of the new NLM Current Catalog. Press releases, announcements sent out on mailing lists, and distribution at professional meetings have been employed to build circulation for the Current Catalog.

During the year NLM began to acquaint the biomedical community with the availability of bibliographies which, although compiled in response to individual requests, are considered by the Library to be of interest to a wider audience. The availability of these Selected Literature Searches from NLM is announced monthly in JAMA, Drug Research Reports and the NLM News. The Library has received 7,313 requests for the series of 47 Literature Searches produced so far.

The NLM News has received a face-lifting: a new masthead and more liberal use of photographs have been employed to make the News a more attractive publication and to inform the library community more effectively of developments at NLM.

Organizational Study. At the request of the National Library of Medicine, a Management Analyst from the Office of the Surgeon General conducted a comprehensive study of the organization of the Library. The Analyst, Mr. Morrill Donnald, submitted his report and recommendations in July 1965. Mr. Donnald's twenty-four recommendations were designed to provide the NLM with an improved organizational structure to meet new and expanded program responsibilities and perform existing program activities more effectively. Acting on the recommendations, the Library consolidated staff functions in the Office of the Director, appointed an Associate Director for Intramural Programs to direct and coordinate the activities of the five library service divisions, and established a structure of three divisions to administer the extramural programs. The Extramural Program divisions are the Research and Training Division, the Facilities and Resources Division, and the

Publications and Translations Division. In addition to implementing those major recommendations, the Library adopted a number of other recommendations designed to clarify operating responsibilities, improve intra-NLM communications, and facilitate the management of NLM program activities.

Financial Management. In August 1965, President Johnson directed each Federal agency to develop a modern planning-programming-budgeting (PPB) system. In describing the system the President stated:

> "Once in operation, the new planning-programming-budgeting system will enable us to:
> (1) Identify our national goals with precision and on a continuing basis;
> (2) Choose among these goals the ones that are most urgent;
> (3) Search for alternative means of reaching those goals most effectively at the least cost;
> (4) Inform ourselves not merely on next year's costs--but on the second, and third, and subsequent year's costs--of our programs;
> (5) Measure the performance of our programs to insure a dollar's worth of service for each dollar spent. . . ."

In 1966, the Library participated in the HEW Department-wide effort to develop a PPB system. The Office of the Surgeon General established a PPB Task Force to develop instructions and procedures for implementing the planning-programming-budgeting system within the Public Health Service.

In May 1966, the Library submitted its Five-Year Program and Financial Plan to the Office of the Surgeon General. Implementation of the PPB system Government-wide is a major undertaking and the actions taken in 1966 have been largely preparatory.

Personnel. Forty-five new positions in the President's budget and sixteen more positions in the supplemental appropriation for implementation of the Medical Library Assistance Act were authorized for Fiscal Year 1966, making continuing expansion possible. During Fiscal Year 1966, the following key staff appointments were made:

Dr. Clifford Bachrach, Chief, Bibliographic Services Division
Dr. Carl-Eric Elwin, Visiting Scientist, Drug Literature Program
Dr. Fritz P. Gluckstein, Commissioned Officer, Technical Services Division

Mr. Charles Herbert, Management Analyst, Administrative Services
Mr. James G. Hill, Budget Officer, Administrative Services
Mr. James D. Isbister, Executive Officer, Administrative Services
Mr. David Kefauver, Chief, Research and Training Division
Mr. Gerald Kurtz, Assistant to the Director, Public Information Office
Mr. Frederick Lancaster, Information Systems Evaluator Information Systems Division
Dr. Joseph Leiter, Associate Director for Intramural Programs
Mr. James P. Riley, Chief, Technical Services Division
Dr. Andrew Sherrington, Visiting Scientist, Office of the Director
Dr. Norman P. Shumway, Head, Medical Subject Headings Staff
Mr. Norman Smith, Staff Assistant, Intramural Programs

Training. Fifty employees participated in in-service training including orientation programs at the Library; eleven participated in training programs at other government agencies, and thirty-six studied at non-governmental facilities. This training required a total of 276 man-days as compared with 165 last year.

Summer Employment. Eight students under the President's Youth Opportunity Program, three under the Commissioned Officers' Student Trainee Program, and eight appointed from the Civil Service Clerk-typist and Clerk-stenographer registers supplemented the Library's work force during the summer months and provided summer jobs for a total of nineteen students.

Quality Increases and Awards. An additional within grade step increase for superior performance was awarded to eleven employees. They ranged in grade from GS-5 to GS-14. Superior performance awards were given to Mr. Robert Cohen ($216), Mrs. Marjorie Wright ($277), and Mrs. Thelma Charen ($300). Mr. Earl Kinslow received $25 for his design of a rack for the storage of buckram rolls used for on-premise binding.

Office Services. Arrangements were made during Fiscal Year 1966 for the rental of approximately 7,500 square feet of office space to house the NLM's extramural program staff. The rental space is located in the Blackwell Building, 7758 Wisconsin Avenue, Bethesda, Maryland (approximately one-half mile from the NLM building).

Repairs and Improvements:

1. The Staff Parking Lot located west of the Library building

was enlarged to allow an additional 36 parking spaces for staff members and others working in the Library building.

2. Two new rest room facilities were constructed on 'C' level. The expanded facilities were required because of the additional staff located on 'C' level.

3. A contract to paint the public areas was awarded late in Fiscal Year 1966 with completion scheduled for the middle of August. Painting included the underside of the high roof, main reading room, History of Medicine's reading room, Board Room, Auditorium, stairwells, and the Lunch Room.

4. A contract was awarded for enlarging the Lunch Room facilities at NLM to expand the seating capacity in the Lunch Room by 44 percent.

5. A contract to convert the space adjacent to the History of Medicine Division stacks to office space was awarded in May 1966.

6. A contract to renovate Room A-54 (old Binding Work area) was awarded in November 1965. The space will provide offices for the Drug Literature Program and the Medical Subject Headings Group.

CHAPTER II

E X T R A M U R A L P R O G R A M S

The most significant event of the past year was the enactment of the Medical Library Assistance Act of 1965 (PL 89-291) which was signed by President Lyndon B. Johnson on October 22, 1965. Originally introduced on January 19, 1965, by Senator Lister Hill in the Senate as S.597 and by Congressman Oren Harris in the House as H.R. 3142, the legislation provides a program of Federal assistance for the Nation's biomedical libraries. Congressman John R. Fogarty, who introduced an identical bill, H.R. 6001 on March 19, 1965, described the underlying philosophy of the Act in his own testimony in the House in support of it as follows: "It wisely assumes that private, local, and state resources will continue to carry most of the expense of our Nation's library system. At the same time it assumes that the leadership role of the NLM should be recognized, utilized and strengthened."

Hearings in the Senate were held on the pending legislation on June 14-15, 1965. Hearings in the House of Representatives were not held until September 14, 1965. The major staff effort early in the fiscal year was devoted to activities associated with Congressional consideration and passage of the new legislation. These activities included staff liaison with the Senate Committee on Labor and Public Welfare, the House Interstate and Foreign Commerce Committee, the Legislative Services Branch, Division of Public Health Methods; the writing of reports and preparation of extensive background materials for DHEW and PHS officials and other staff work required in the legislative endeavor.

Rarely has a health legislative program received such extensive and unanimous support as PL 89-291. Numerous organizations came forward strongly in favor of its enactment. Some of the major organizations testifying in support of the legislation included: the Association of American Medical Colleges, the American Medical Association, the American Dental Association, the American Association of Dental Schools, the Medical Library Association, the Special Libraries Association, the American Heart Association, the American College of Physicians, the Association of Research Libraries, the American Podiatry Association, and the American Optometric Association.

The Congressional committees received letters in support of the legislation from many medical schools, universities and such organizations as the following: the American Public Health Association, the American Hospital Association, the American Nurses' Association, the American Association of Colleges of Pharmacy, the American Medical Writers' Association, the American Thoracic Society, and the American Psychiatric Association.

After passage of the Act, regulations necessary for its implementation were developed and written in collaboration with representatives of the Office of the General Counsel. Policy guidelines, informational materials, procedures, application forms and all other necessary documents were developed and published. To facilitate review and approval of regulations and policy guidelines by the Board of Regents, a Subcommittee for Extramural Programs was appointed and first met with the Extramural staff on February 18, 1966, to review preliminary drafts of these official documents. Full Board review and approval was obtained at the regular meeting, March 21-22, 1966. After clearance through official channels of the Public Health Service and Department, the regulations were published in the Federal Register July 13, 1966.

The Board of Regents Subcommittee for Extramural Programs continues to meet just prior to the regular Board of Regents meetings to discuss and review special problems and program developments in the Extramural area.

The overall plan for administration of the Extramural Programs, including planning the review process for grants and awards, was coordinated with the Grants Policy Office in the Office of the Surgeon General. The NLM Associate Director for Extramural Programs continues as a full voting member of the Interbureau Advisory Committee for Extramural Programs under the Chairmanship of the Grants Policy Officer, OSG.

During the course of the year, the Director, NLM established two Advisory Committees relating to Extramural Program activities. These committees will provide initial review of applications for grants and awards prior to final review by the Medical Libraries Assistance Advisory Board which is the Board of Regents. The two newly established initial review committees are the Manpower and Training Committee and the Facilities and Resources Committee. Training grants and fellowships will be reviewed by the former; construction grants, resources grants and regional library grants will be reviewed by the latter. In keeping with the decision to have research and development grants and publications support grants reviewed through the Division of Research Grants, the Advisory Committee on Scientific Publications was transferred from the Publications and Translations Division, Extramural Programs, NLM, to the Division of Research Grants, NIH, effective November 1, 1965. Negotiations with the Division of Research Grants have been carried on to broaden the responsibility of the Committee to include review of projects in information science and rename it the Committee on Scientific Communications. The expanded committee will be charged with responsibility for initial review of the broad area of research and development in information science, as well as review of applications for the support of special publications. Discipline and

NLM EXTRAMURAL PROGRAM

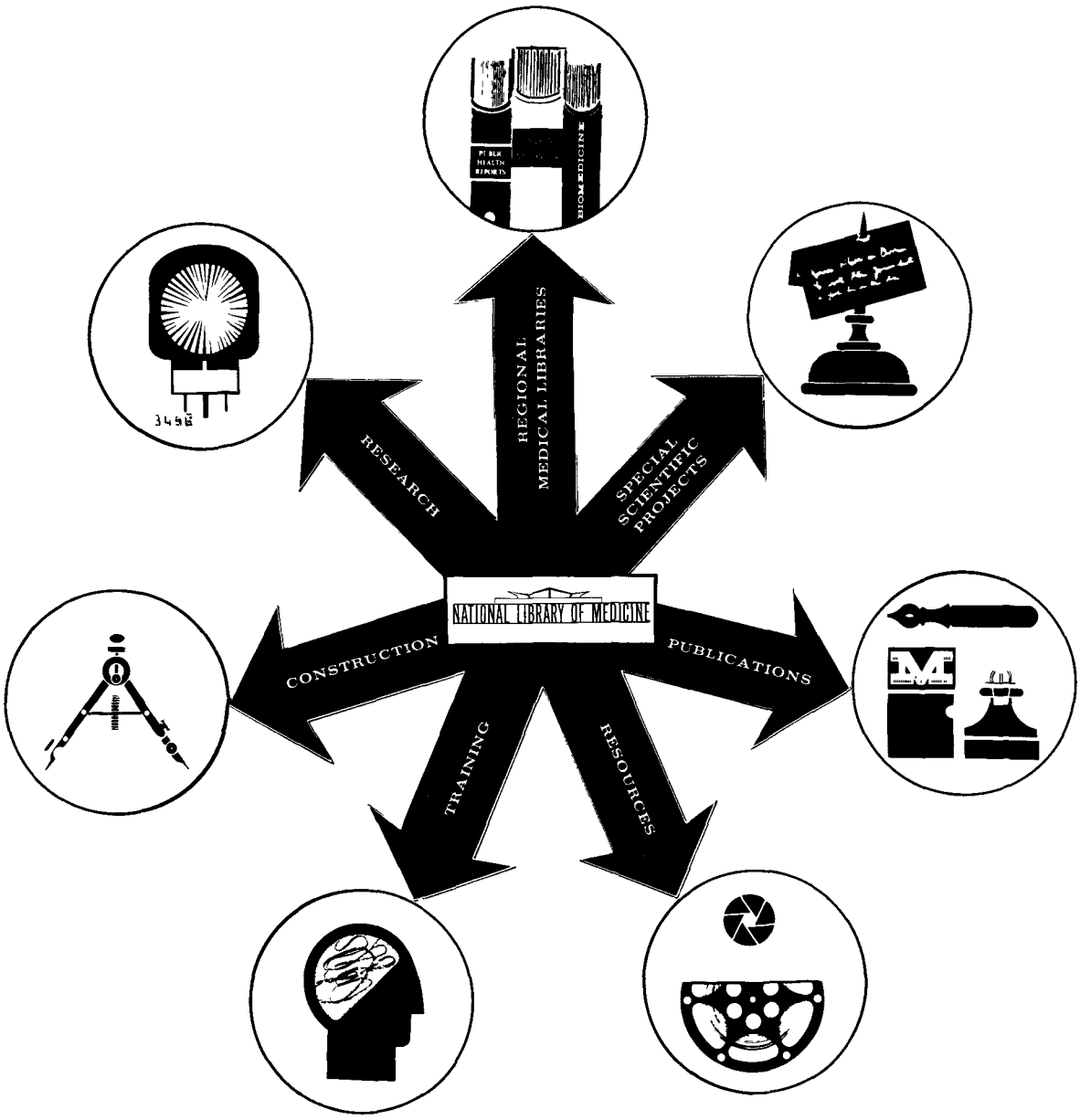


Fig. 5

categorically oriented Study Sections of the Division of Research Grants will be asked to review NLM research and publications projects when appropriate.

Organization of Extramural Programs. Special sections of the Medical Library Assistance Act cover construction, expansion and renovation of facilities, grants for improvement and expansion of basic library resources, regional library grants, special scientific projects, research and development, manpower development, and publications support. In addition, the Extramural Program retains the previously available authority of Section 301 of the Public Health Service Act for support of research and training (See Fig. 5). Also the Extramural Program has been delegated the responsibility for planning and coordination of the Special Foreign Currency Program activities of the PHS relating to the support of publications. Previously two Divisions existed, the Publications and Translations Division and the Research and Training Division. In addition, during the course of the past year, a Facilities and Resources Division was approved by the Public Health Service, April 7, 1966. In support of these three program and functionally oriented Divisions, and the Office of the Associate Director for Extramural Programs, a Grants and Contracts Management Office was established with a Management Officer, Mr. John P. Spain. This Office not only provides grants and contracts management but all administrative and supportive services for the Extramural Program. Included in this will be all grants processing functions, committee management, and fiscal and budgetary development and management.

PUBLICATIONS AND TRANSLATIONS DIVISION

Domestic Program. The Publications and Translations Division continued to review and analyze the substantive aspects of the publications support program and to develop cooperative arrangements with other elements of the Public Health Service, DHEW, government agencies, and national and international scientific and professional bodies.

Several notable developments took place during FY 1966. The abstracting of specialized foreign literature by Biological Sciences Information Services and Excerpta Medica and the translation of selected Soviet literature by the Federation of American Societies for Experimental Biology had been supported for several years under contract. In FY 1965, a principle had been adopted that support for abstracting and translating activities should be given primarily for the intellectual preparation of the material and those costs which were concerned with publication aspects should be assumed preferably by appropriate professional scientific organizations. In FY 1966 it was decided that the long-term support for these abstracting and translation activities should be gradually phased out. These

three abstracting services were asked to develop proposals which would provide for phase-out of support over the next three years with the attainment of self-sufficiency during this period of time. Biological Abstracts and Excerpta Medica accepted this concept and presented plans and budgets for a program for FY 1966 through 1968. The Excerpta Medica proposal was complete enough so that a contract could be negotiated for 1966 with options for support for two additional years. Biological Abstracts submitted a three-year proposal but only one year was negotiated. Support of the FASEB Translation Supplement was extended for a terminal year.

Considerable attention was paid during FY 1966 to better definition of the scope of the research contracts for abstracting and translating the foreign literature and improving the feed-back on scientific content from the contractors. This not only facilitated project evaluation but provided information of value in identifying and translating the most significant foreign literature.

A detailed staff analysis of the subject matter distribution of the Soviet research articles being abstracted by Biological Abstracts demonstrated that a very significant proportion related to agricultural and wildlife literature with no basic health-related components. These were not within the Library's immediate area of responsibility and, as a result of more precise specifications, it is estimated that for FY 1966 the number of health-related abstracts of Soviet literature prepared by Biological Abstracts under the NLM contract will be increased by about twenty-five percent. At the same time the contractor has continued to cover Soviet agricultural and wildlife literature.

More substantive subject-oriented reports are now required under the contracts. The staff developed and incorporated specifications which require information on the foreign journals covered, the yield of articles judged to be of interest to U.S. biomedical scientists for each journal for the period covered, and the subject-matter distribution of the abstracts and translated articles produced. This provides one index of the potential U.S. interest in specific Soviet and Japanese health-related journals, and the relative significance of the Soviet and Japanese research effort in different areas.

The Excerpta Medica report will cover Excerpta Medica's entire Soviet and Japanese abstract effort, even though NLM supports only part of this total effort. The FASEB contract calls for a detailed report which will include both quantitative and qualitative elements

for the total NLM support period 1962-1966. The scientist-members of the Editorial Board of the project will assess the strengths and weaknesses of the Soviet literature in their subject areas.

The Bibliography of Medical Translations (BMT) was changed from a quarterly supplement to a semi-monthly publication beginning with the July 30, 1965, issue. During FY 1966, a backlog of citations to translations was published in two Quarterly Supplements, 9 and 10, covering July-December 1964, and Volume II, Part 1, covering January-June 1965.

The format of the BMT was changed to conform with the broad subject headings established by the Clearinghouse for Federal Scientific and Technical Information and citations are listed alphanumerically under each category by the COSATI accession number rather than by author for easier listing and ordering purposes. As another improvement, the compilation of a cumulated permuted title index for subject entry into the bibliography for the 1965 issues was initiated. Two other innovations were made in the publication: a listing of all issues of the BMT on the back cover and the use of a self-mailer to reduce handling and mailing costs.

In FY 1966, resources in the amount of $545,000 were initially made available for publications contracts. A supplemental appropriation of $200,000 for grants was received in June 1966.

Special Foreign Currency Program. The objective of the Special Foreign Currency Program is to make the biomedical foreign language literature more readily and easily available to U.S. scientists and thereby increase scientist-to-scientist communication.

Prior to FY 1966, the NLM Special Foreign Currency Program was executed solely through the National Science Foundation and its overseas contractors. The FY 1966 NLM-NSF agreement was rewritten to include recognition of independent NLM program activity. The direct operation was effected with program activities negotiated this year in Poland and Israel. Two major programming trips were made: one to Poland and Yugoslavia and one to Israel and India.

Critical Reviews. One of the most significant accomplishments during the past year was the establishment of a program of critical reviews. This activity is designed to identify trends and to stimulate future research. The critical review is more than a summarization of the literature of recorded research; it is also a scholarly creative analysis and synthesis prepared by a leading

scientist. As a result of such analysis, the scientist identifies the present status of research, the advances which have been made, problems which need to be examined, and research opportunities for the future. To emphasize the cooperative aspect of this effort, the NLM has encouraged the preparation of such reviews jointly by a foreign scientist in cooperation with a colleague in the United States.

The following critical reviews in Poland are in preparation:

a. "The Application of Metabolic and Excretion Kinetics to the Problems of Industrial Toxicology" by Dr. J. Piotrowski, Institute of Occupational Medicine, Lodz.

b. "Organization of Clotting Processes" by Hugon Kowarzyk, M.D., Medical Academy, Wroclaw.

c. "Myoplastic Amputation and the Use of an Immediate Prosthesis" by M. A. Weiss, M.D., Holder of the Chair in Rehabilitation at the Medical Academy in Warsaw, and Head, Rehabilitation Clinic in Konstancin.

In Yugoslavia, a programming trip was made to identify scientists and topics for critical reviews. The Yugoslav Academy of Arts and Sciences in Zagreb has assumed responsibility for this task. It has held one meeting and will hold another meeting at the end of June at which time a choice of themes and suggestions for collaboration will be made.

The National Library of Medicine is in the process of formalizing an agreement in Israel with the Editorial Board of the Israel Journal of Medical Sciences. The IJMS will assume responsibility for identifying scientists and subjects appropriate for critical reviews. The Editorial Board will serve as a scientific study group for critical review proposals before submission to the NLM for consideration.

Special Projects. In FY 1966 two projects were undertaken in response to U.S. needs in the drug information field. These were exploratory projects: one at the request of the Surgeon General, the Drug Digest project; and the other in cooperation with the Food and Drug Administration, Drug Toxicity Abstracts.

The Drug Digest project is a one-year experiment to: a) make important research on drugs published in the foreign languages more readily available to U.S. scientists, and b) explore the effectiveness of packaging the information in the form of "digests".

The "drug toxicity" abstracting project in Israel is a cooperative effort between the NLM and the FDA for the preparation of abstracts from 25 foreign journals in the drug field not now covered by the FDA in its Medical Literature Branch Journal of Literature Abstracts or by any other major abstract service.

As a result of these two experimental projects and the success of the initial efforts, NLM has made the following programming commitments for FY 1967:

a. The original contract for FDA activities will be followed by a three-year program of expanded scope and increased journal coverage.

b. The Drug Digest Bulletin will be continued for another two years which will include evaluation and final decision on the ultimate future of this project.

The establishment of Oral Research Abstracts in April 1966 was the direct result of a cooperative effort undertaken by the NLM, the National Institute of Dental Research, the Division of Dental Health, and the American Dental Association. Abstracts from the world's literature relating to dental research are prepared initially in Israel with the NLM Special Foreign Currency Program providing a basis for support.

Translations. The translation of the History of Physicians is being edited in Israel for submission to the NLM in the fall of 1966. A decision on the method of printing will then be made. The NLM has cooperated with the Bureau of State Services in obtaining the translation publication of the monthly Russian journal, Gigiena i Sanitariya (Hygiene and Sanitation), and has obtained the translation and publication of Staub, a monthly German journal for which the Bureau of State Services obtained the license.

In Poland, the NLM supports the translation and publication in English of ten biomedical Polish journals and, in Yugoslavia, three Yugoslav journals. Special effort has been made to reduce the time lag between the appearance of the original and the English language edition to a maximum of six months, to include abstracts with all published articles, and to provide English language reprints of these articles to the authors. The NLM has also developed an expanded, specialized distribution of these publications to insure that they are more readily available to the U.S. biomedical community.

In Israel, support was provided for a special issue of the Israel Journal of Medical Sciences which contained the Conference Proceedings of the International Symposium on the Impact of Basic Science on Medicine, 21-28 June 1965.

RESEARCH AND TRAINING DIVISION

During FY 1966, the activities of the Research and Training Division had two objectives:

1. Strengthening and expansion of programs of support which had been initiated and carried forward in a limited way under the authority of Section 301 of the Public Health Service Act; and

2. Implementing new programs authorized by the Medical Library Assistance Act of 1965 (PL 89-291).

Awards for research grants, training grants and fellowships were first made in FY 1965. These included six research grants, two training grants and one fellowship, which totaled $119,897. Three research contracts in the amount of $63,663 were also negotiated. In FY 1966, resources in the amount of $430,000 were initially made available for grants and contracts. These funds were designated to be used for research in History of Medicine and Drug Information. A supplemental appropriation was received in June 1966 of $1,800,000 for research and development, training and fellowships, and special scientific projects, all of which were authorized by PL 89-291.

Manpower Development and Training. In the United States and Canada, of the 2,188 graduates from the 36 accredited library schools in 1963, 1,839 were identifiable as known placements. Of these, 24 were placed in medical libraries and 13 in hospital libraries. It is not known how many of these had specific training in medical librarianship. Serious as the quantitative problems are, simply adding more schools which offer a course in medical bibliography will not solve the infinitely more far-reaching problems. Training programs are needed which go beyond the basic traditional training in library science and provide the student with an educational experience that combines further theoretical depth with either research or practical experience, all directly related to servicing requirements of medical science. Rapid retrieval of drug information, continuing education of the physician, provision of regional services, library "backup" for specialized information centers such as those in Parkinsonism, brain research, diabetes, and cardiovascular disease are the types of services needed. With the growing concept of the learning resource center in the medical complex, the medical library will no longer be

limited to books and journals but responsible for servicing newer instructional media. Medical science information centers broadly conceived and functioning will be required in modern health sciences complexes.

Fiscal year 1966 was the initiation of support of projects directed at the training of manpower to meet a variety of critical needs of the health information field. During fiscal year 1966, two training grants in the history of medicine were supported. Responsibility for support of a training program in Biomedical Librarianship and Information Service at UCLA, which had previously been supported by the National Institute of General Medical Sciences, was assumed in 1966. Six new programs were funded by NLM in FY 1966 in the broad area of health information service. The hallmark of this group of projects is diversity in content. Advantage is taken in all of unique talents or situations in providing opportunities for training individuals to pursue careers of service, teaching and investigation in the field of health science information. As an example, the training program at the University of Chicago will utilize a research project in which the information needs of the School of Medicine faculty will be studied and techniques for satisfying them will be utilized as a laboratory for training. In all instances, the training programs are specifically directed to health-related information activities and are designed to accommodate trainees who have strong career commitments to the health information field or to develop these commitments in those who may not already have them. Training grants initiated in 1966 are listed in Appendix XIV.

Biomedical Communications Research and Development. The Extramural Program of Research and Development of NLM is one of support for projects directed at improving information services to their ultimate users--the practitioner, the research scientist, and the student. Funds to initiate this aspect of the program were first available in FY 1966. Projects are supported by both research grant and contract. There are three general areas into which these projects fall: (1) the requirements of users in biomedical information; (2) the improvement of access to the store of biomedical information; and (3) the interrelationships of institutions serving the biomedical information field. Examples of projects being supported in each of these areas are: "Experimental Dissemination of Biomedical Literature" conducted by Don Swanson, Ph.D. of the University of Chicago; "Total System Computer Program for Medical Libraries" under the direction of Robert T. Divett, University of New Mexico; and "Relationships of Biomedical Information Services"

being carried out by Vern Pings, Ph.D. of Wayne State University. Studies necessary for the initiation of the new support program of the NLM were instituted by way of research contracts. These are discussed below.

In addition to projects dealing with biomedical information broadly, the research and development program is responsible for the conduct of support in the program areas of the history of medicine and drug information.

During fiscal year 1966, 17 research projects in history of medicine were supported by research grants. These projects and their titles are included in Appendix XV. Particularly noteworthy is a project being conducted by Genevieve Miller of the Cleveland Medical Library Association on the "Teaching of Medical History in the U.S. and Canada". Results of this project will fill a keenly felt need for timely, accurate and comprehensive information on the status of medical history in medical education today.

A project designed to collect important historical material by direct interview with individuals who have had great influence in the progress of the health sciences in this country was initiated during FY 1966. Harlan Phillips, Ph.D., principal investigator for this project, has had extensive experience in the technique of collecting oral historical data from eminent persons, preserving for posterity their own personal recollections and interpretation of critical events.

Two training grants in medical history were supported. NLM assumed support of these programs in FY 1965 and continued them in 1966. One is at the Johns Hopkins University under the directorship of Professor Oswei Temkin and the other at Yale University under Lloyd G. Stevenson, M.D., Ph.D.

Support for several new projects related to the improvement of the flow of information on drugs was made possible by the appropriation of funds in FY 1966 specifically designated for this area. A training grant was funded to support a training program in the Department of Pharmaceutical Chemistry, School of Pharmacy, University of Tennessee in which trainees who hold graduate degrees in library sciences and who have backgrounds in the physical biological sciences are assigned to a specific research team to act as the information resource person to it. Trainees will be given special instruction in the information requirements of scientists and in mechanisms for meeting these needs. A research project on the "Automatic Indexing of Drug Information", being carried out at

c. A research program should be directed at the use and function of the hospital library, e.g.

1) The physician and his use of his own and the hospital library.

2) Better reference retrieval systems for libraries of small and medium size hospitals.

3) Performance standards including collection size and form and library services.

3. To serve continuing education effectively, the library must extend its scope beyond the traditional one of a document repository. It should become agressive and not remain passive in continuing education. The library should concern itself with additional ways of supplying information such as oral essays, audiovisual materials, etc. The library should encompass the concept of the "information center" and add the element of judgment and evaluation to the information it provides to the practicing physician. It should have an active role in the stimulation and production of materials and the dissemination of these in various forms.

a. A test and demonstration center (or centers) is needed to provide a laboratory for:

1) Research and development so that generalization can be established on the basis of valid data rather than opinions.

2) Testing various modalities for the provision of library and related services and continuing education programs to practitioners.

b. Such a demonstration center could be utilized most effectively if related to an active medical complex which could provide actual field work, i.e., the questions would be asked, the response formulated, and the response evaluated in the context of a practical working situation.

4. A variety of personnel must be trained (educated) to be capable of transforming the traditional library into a learning resource which can effectively serve continuing education.

Rutgers University, is being supported. The New York Academy of Sciences will hold a series of interdisciplinary conferences on drug information as a result of a grant from NLM.

In August 1965, a small NLM staff committee was established, under the chairmanship of Carl D. Douglass, Ph.D., to consider the role of NLM in the field of continuing education for the biomedical professions. In the course of two meetings of this committee, a number of ideas were generated and preliminary plans were made for a meeting of an ad hoc advisory group.

In October 1965, Dr. Burnet Davis came on duty as Continuing Education Officer and, after reviewing the work of the Committee, took over the responsibility for organizing the proposed meeting of the advisory group.

On January 14 and 15, 1965, a group of distinguished medical educators and scientists was called together, under the chairmanship of Dr. Robert Ebert, Dean, Harvard Medical School, to discuss "The Role of the Medical Library in Continuing Education". At the conclusion of the session, the following principles were identified and recommendations made:

"1. A central issue in continuing education is the development in the individual of the capacity for independent learning. Support should be given to institutions which bring forth experimental ways of training professional students so that they may effectively use informational resources.

2. A variety of individuals should be reached through programs of continuing education (including physicians ranging from the younger more sophisticated physician to the graduate of 25 years ago; members of the other health professions, e.g. dentistry; and personnel in the paramedical and ancillary health services). The community hospital appears to be the primary educational resource of the practicing medical community.

a. Hospital libraries should receive support for the improvement and expansion of resources at a sufficient level to make a significant impact on continuing education.

b. A variety of community hospitals and their library functions and services should be studied to evaluate the impact of such support on continuing medical education.

a. Train individuals capable of acting as agents of the learning resource center in carrying information and sources of information directly to the practitioner.

b. Train individuals who can manage large learning resource centers.

c. Encourage the training of library technologists.

d. Train individuals in the utilization and evaluation of the educational process and techniques. These individuals, particularly, should be well qualified to conduct research on the process whereby the practicing physician obtains information and to implement techniques which facilitate his acquisition of additional knowledge.

5. More sophisticated specifications for an abridged Index Medicus should be developed to provide a ready reference retrieval tool suitable for office use.

6. In operational terms, the role of the National Library of Medicine can to a large extent be expressed within the broad concept of regional health care."

Staff recruitment, budget development, long and short range program planning, the establishment of advisory committees, the appointment of consultants and a great variety of similar activities required constant staff attention throughout the past year. A special effort required for the institution of these new programs was the initiation of studies to establish functional guidelines for the construction of health science libraries, and to develop objective standards based on the services to users by which to measure library performance. Agreements were entered into with the Association of American Medical Colleges to accomplish the first and with the Institute for the Advancement of Medical Communication for the second. These are listed in Appendix XVI.

A most important part of the establishment of all of these new programs has been the numerous consultations held with individuals representing institutions which have needs related to the various support programs. In addition, several professional and special meetings have been attended at which detailed explanations of the provisions of the Act, followed by question and answer sessions, have been held. The Division was fortunate to recruit Mr. David F. Kefauver who joined the staff September 1, 1965, having been previously associated with the National Institutes of Health. Mr. Kefauver became Chief of the Research and Training Division on July 3, 1966.

FACILITIES AND RESOURCES DIVISION

In order to facilitate the administration of the Medical Library Assistance Act (PL 89-291), it was necessary to establish a new Division of Facilities and Resources, having responsibility for those programs designed to aid in the construction, renovation, and expansion of facilities, grants for expansion and improvement of basic library resources, and the support of regional libraries. The Division was described and authorized during FY 1966 but did not become functional until the close of the fiscal year. Carl D. Douglass, Ph.D., formerly Chief of the Research and Training Division, was appointed Chief of the Facilities and Resources Division. Mrs. Maxine Hanke, formerly Special Assistant to the Associate Director for Extramural Programs, became Medical Library Resources Grant Program Officer.

In addition, Mr. Robert Walkington and Dr. Louis Gerber will become associated with the construction program and the regional library program respectively, shortly after the beginning of the new fiscal year.

In the supplemental appropriation for FY 1966, $2,000,000 was included for the award of medical library resource grants, to remain available through FY 1967. From this, three resource grants were awarded within FY 1966 in order to initiate the program. These are listed in Appendix XVII.

CHAPTER III

INTRAMURAL PROGRAMS

During FY 1966, the Intramural Programs initiated a number of significant activities which further advanced the evolution of the National Library of Medicine from a traditional library to an active information service center.

1. The new computer-produced NLM Current Catalog provides bi-weekly citations (with quarterly cumulations) of recent NLM acquisitions to the nation's medical libraries as a cataloging and acquisitions tool. The introduction of NLM's express cataloging service accelerates the acquisitions program and permits rapid dissemination of cataloging information through the NLM Current Catalog. The development of a computer-generated file in this operation will provide a base for the establishment of a fully automated selection, acquisition, and cataloging service in the next few years.

2. Microfilm standards have been developed as a prerequisite for the preservation of the Library's collection, for the control of input for an NLM graphic image program now under development, and for the provision of the microfilm resources required in the implementation of the Medical Library Assistance Act. Since these standards greatly exceed current commercial standards, a number of pilot production contracts were established. These projects confirmed the feasibility of providing high-quality images on a production scale.

3. Decentralized MEDLARS centers have been established to extend the bibliographic resources of the National Library of Medicine. While production of NLM computer-generated bibliographic searches nearly doubled in FY 1966, due to increased demand, a substantial backlog of these demand searches developed. The decentralized centers, expected to be fully operational in FY 1967, will supplement the Library's search capability using NLM tapes to make MEDLARS services available on a regional basis.

4. Cumulated Index Medicus appeared in 1966 for the first time as a computer-produced publication. Previously published by the American Medical Association, CIM was reestablished as an NLM publication and responsibility.

5. The Auxiliary Chemical File was created for the Drug Literature Program. Prototype for the development of expanded MEDLARS capabilities, the Auxiliary Chemical File when operational will permit greater flexibility in retrieval through greater specificity and synonym lists.

6. Stimulated by their involvement in the construction of the NLM Five-Year Plan, and by the expanding role and responsibilities of the Library as identified by the plan, the staff of the Intramural Programs began development of a new computer system for MEDLARS. An evaluation of MEDLARS was started. A contract was written with an independent consulting organization for the compilation of specifications for new computer hardware which will have an expanded memory core, extended on-line capabilities, and will respond better to the increasing information needs of the health professions.

MEDICAL SUBJECT HEADINGS (MESH)

Early in Fiscal Year 1966, the Medical Subject Headings group responsible for the development and updating of headings for MEDLARS, was administratively separated from the Bibliographic Services Division and became directly responsible to the Associate Director for Intramural Programs. Dr. Norman P. Shumway was appointed to head the group succeeding Dr. Peter Olch, who joined the History of Medicine Division.

1966 Revision of MeSH. The July 1st closing date for acceptance of new headings and changes provided adequate time for preparation of the revision, making a preprint of the alphabetized MeSH available for indexing in October. The group completed work on the 1966 revision on December 11, and Medical Subject Headings 1966 was published as Part 2 of Index Medicus, January 1966.

A noteworthy change was the reinstitution of the use of topical subheadings, which had been dropped in favor of coordination of main headings when MEDLARS was initiated in January 1963. The response of librarians in general was one of approval of the increased specificity and easier searching which the subheadings made possible in Index Medicus. The revision included a subject heading analysis resulting in 455 new subject headings and 245 deletions from the subject heading list.

MeSH Revision 1967. Acceptance of new headings and changes was terminated June 30, 1966. Principal attention in the revision was given to provisional headings. Extensive changes in the categorized lists developed as an outcome to the structuring of subcategories (particularly Chemicals and Drugs; Analytical, Diagnostic and Therapeutic Techniques and Equipment; Physical Sciences; Humanities; and Communication, Library Science, and Documentation), new headings recommended by the Ad Hoc Committee on Epidemiology Terminology, a few nursing and dentistry headings, and new subheadings.

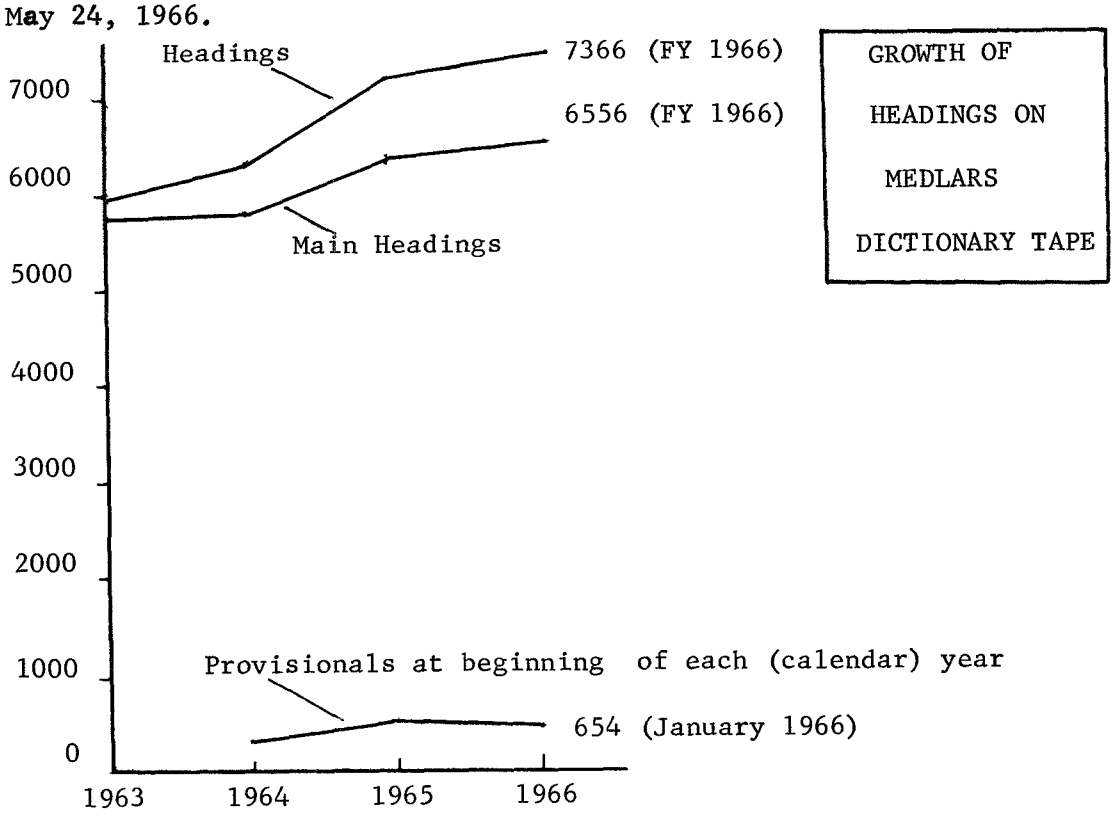
Provisional Headings. The list of provisional headings numbering close to 900 at the end of FY 1965 was reduced sharply when 251 became main headings and those used infrequently were deleted. Only 531 remained after the 1966 revision. In 1966, 123 were added for a total of 654 at the end of FY 1966.

Provisional headings which attracted ten or more citations were reported periodically to the Section beginning in 1965 and constituted a major source of new main headings. Of 480 such headings 229 (47.7 percent) became main headings in the 1966 revision and an additional 100 (20.8 percent) are to become main headings in 1967; 45 (9.5 percent) have been deleted (usually because of the addition of subheadings which render a more specific heading unnecessary) so that only 106 (22.1 percent) from the 1965 provisional headings will remain on the MEDLARS Dictionary Tape.

In 1966 the parameter of the large-volume provisional heading report was changed so that provisional headings were reported only after they had been used 20 times, rather than 10 times as in 1965. Seventy-eight such headings were reported before the closing date for the 1967 revision; 51 (65 percent) are to become main headings in 1967.

All provisional headings remaining on the files in 1966 were defined and a list of these headings with their definitions or scope notes and their indexing instructions was issued in January 1966. Supplements for new headings added during 1966 have been issued monthly and a cumulative index has been prepared each month for all provisional headings added since the revision.

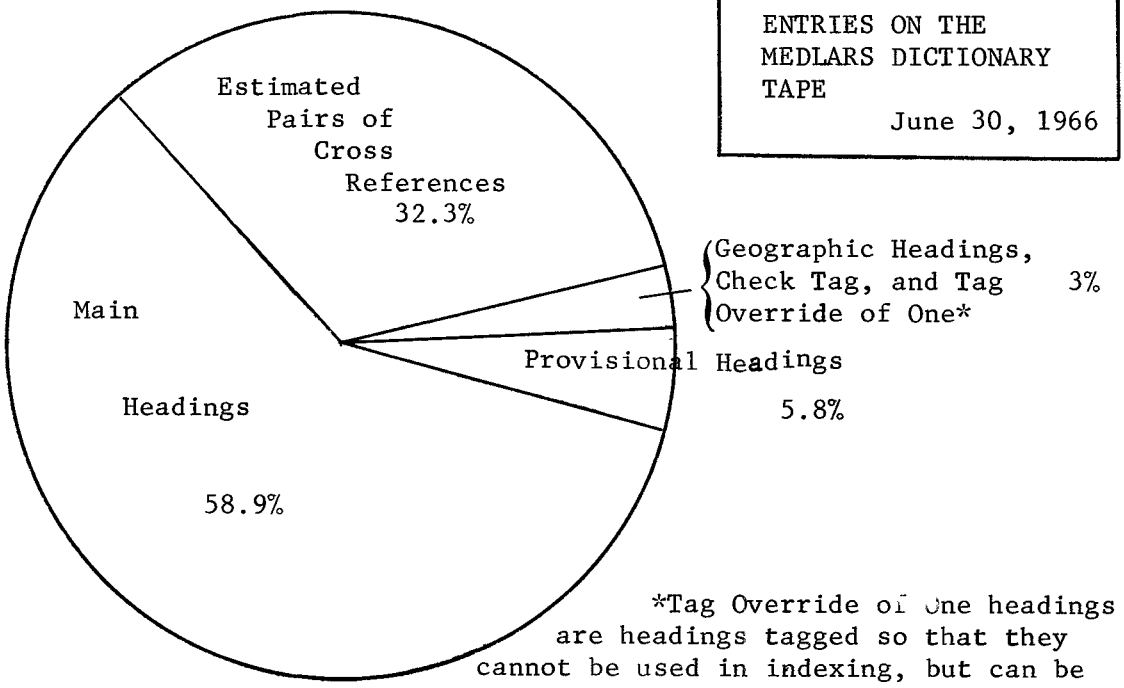
The list of Medical Subject Headings with Provisional Headings was printed by GRACE on September 24, 1965, January 24, 1966, and May 2, 1966. Copies were distributed to Indexers, Searchers, and the MeSH mailing list on October 7, 1965, February 2, 1966, and May 24, 1966.



Trees. The development of hierarchical structures for the various categories proceeded during this fiscal year and by the end of the year all of the trees for the majority of categories had been input to the computer files and file maintenance completed; and most structures for the Chemicals and Drugs subcategories were ready to be input. This involved changing 3,205 class numbers or approximately one-third of the estimated total (9,194) changes to be made. In addition a revised and more complete list of geographic headings was developed based upon the official names established by the Board of Geographic Names.

The Information Services Division wrote a computer program to print out the tree structures using the Honeywell High Speed Printer and also to provide a GRACE printout. Not only do these programs provide a most satisfactory presentation of the hierarchies suitable for publication if desired, but also prompt updating of tree structures is achieved without the heavy expenditure in clerical time previously required. Because the trees are a major requirement for searching the MEDLARS tapes, this will permit the Library to supply to the search staff and those of the MEDLARS centers the new tree structures along with the Medlars Dictionary Tape as soon as it reflects the annual revision changes.

Cross References. Anticipating a major expansion in the number of cross references to be added to the MDT the MeSH Section has requested a computer program addition which will speed up inputting in two ways: (1) by accepting main heading codes as alternatives to main headings in English, and (2) by inputting forward and back references with a single transaction rather than two transactions.



*Tag Override of One headings are headings tagged so that they cannot be used in indexing, but can be retrieved in search.

New Medical Subject Headings. The first section of New Medical Subject Headings, 1963-1966, a list of new headings added to the MEDLARS Dictionary Tape subsequent to the initiation of MEDLARS in 1963, was distributed in May 1966 to the NLM Search Section and to ISD Liaison for the regional centers. The list at the present time includes:

1. Main headings added in 1966 with indexing instructions for the period before they were entered.

2. All provisional headings through March 1, 1966.

3. Main headings which superseded deleted headings which had to be retained on the MDT because file maintenance could not be done to the new headings.

The list is maintained on a visible index to facilitate continual revision. It will be updated after the 1967 revision is concluded and distributed again.

Usage of Headings in Indexing. The annual statistical report on the 1965 usage of MeSH headings in MEDLARS showed a ratio of 73.8 Index Medicus citations per subject heading in comparison with 74.8 in 1964. Comparative figures for the two years follows:

	Index Medicus Citations	Non IM Citations	Total Citations	Number Subject Headings	Citation/ Subject Heading (IM)
1964	434,499	519,916	954,415	5,812	74.8
1965	465,759	518,583	1,047,342	6,345	73.8

The usage of main headings and provisional headings according to category has been tabulated and found approximately the same as 1964. The largest number of citations appeared under the main heading ANTIBIOTIC (1275), followed by TISSUE CULTURE (965), MUSCLE (952), INFANT, NEWBORN, DISEASES (948) and ERYTHROCYTES (903). The use of subheadings in 1966 is expected to subdivide these large groups of citations.

Intralibrary Communications. Weekly meetings for the 1967 MeSH revision, scheduled from late April to the end of the fiscal year with representatives of Indexing, Search, Cataloging, and occasionally the Drug Literature Program, have provided a forum in which differences of opinion were reconciled.

The same mechanism was adopted earlier with the Indexing and Search Section on a year-round basis whenever new provisional headings were circulated for comment. These meetings have given the sections

a better understanding of the overall problems in subject heading usage through exchange of opinions on the acceptance of new terms as provisional headings, review of definitions and scope notes, and the approval of indexing instructions.

Extramural Communications. The Medical Subject Heading staff continued to consult with professional advisers from the scientific community during the year, chiefly through ad hoc task forces representing professional associations or individuals working under grants or contracts with the National Institutes of Health.

The final meeting of the Epidemiology Committee in September produced a report for the Epidemiology Section of the American Public Health Association which resulted in a number of provisional headings for the January Index Medicus. Ten of these headings were chosen for introduction as permanent subject headings for the 1967 revision. Dr. Schweitzer, Chairman of the Committee, continued his interest in the development of a search strategy for a recurring bibliography in the field. He was also instrumental in establishing the Committee on Medical Care of the American Public Health Association.

The Committee on Medical Care met first in March and has already developed the framework for a new category with subcategories. Provisional headings will be introduced for the indexing of citations starting in the fall of 1966, permitting a review of their usage through the spring of 1967. A preliminary draft report to the Medical Care Section APHA is expected in October; the recommendations of the final report will be incorporated into the 1968 revision of MeSH.

The National Academy of Sciences, under contract to the National Library of Medicine, in December 1965 after a year of planning, appointed a task force to address itself to the improvement of MeSH in the fields of Psychiatry, Psychology, Sociology, and Anthropology. The first meeting in February provided for assignments of responsibility. Representatives from the Human Relations Area Files and the Center for Applied Linguistics spent time with members of the MeSH staff, reviewing library practices and preparing plans for the development of vocabularies, relating to language disorders and anthropology to be submitted to the September 19, 1966 meeting. Preparation for a fall 1966 study in sociology has also been made.

Dr. Grant Liddle of Vanderbilt University, Nashville, Tennessee, began work on a vocabulary of terms relating to the pituitary and adrenal glands under contract to the National Institute of Arthritis and Metabolic Diseases, as a cooperative effort with the MeSH group at NLM. Dr. Liddle selected a research associate to spend six weeks at the Library learning indexing and search techniques and developing a plan of cooperative work with the MeSH staff.

Liaison was maintained with the National Institute of Neurological Diseases and Blindness Information Network. Representatives from UCLA and Columbia University presented the preparation of their vocabularies, both of which are based on MeSH terms. Full machine implementation of a hierarchic display is not yet possible for either vocabulary, nor have they been collated; but the final development promises to be very useful not only to the NLM but to the field generally.

A paper by Miss McCann and Dr, Elwin of NLM and Mr. Cleveland and Miss Reilly of the American Hospital Formulary Service, read in June at the Drug Information Association meeting, described the collaboration of these representatives in a review of all drug class headings. Changes were made in both information systems to standardize headings so that the same class headings would be used for the same drugs. Mr. Don Walker of the Drug Literature Program has undertaken an intensive study of the headings for organic chemicals. Several members of the DLP staff were very helpful in making recommendations for new subheadings to be added in 1967 and in preparing documentation to substantiate the recommendations.

Informal discussions have been held during the year with representatives from a variety of disciplines with a view to developing advisory groups in the future, notably in Bioengineering, Cystic Fibrosis, Nutrition, Population, and Cardiology; liaison has been maintained with representatives of the various National Institutes of Health responsible for recurring bibliographies sponsored by them and efforts have been made to incorporate needed concepts into the new medical subject headings. In addition much assistance in the development of nursing terms has resulted from frequent communication with the representatives of the American Nurses Association.

Medical Subject Headings Training. To assist in the full development of NLM's training services, the MeSH Section prepared a syllabus for training in Medical Subject Headings theory and practices. It outlines training at both basic and advanced levels. Two weeks participation would be minimal for either level.

MeSH training was provided to trainees from UCLA and Karolinska Institutet MEDLARS centers in September 1965 and to a trainee from the University of Colorado Medical School in May 1966.

Second Generation of MEDLARS. The MeSH staff reviewed the practices and policies governing the program with representatives of the Auerbach Company. This has provided a most salutary atmosphere for reconsideration of many of the problems that have been posed during the past several years particularly in respect to the various methods of displaying MeSH, the rapid communication of information concerning changes to the various groups and organizations dependent upon it, and the development of programs which will permit the most efficient use of data processing principles.

D R U G L I T E R A T U R E P R O G R A M

During FY 1966 the Drug Literature Program developed from a project headed by one professional assigned to develop a system for the accumulation and dissemination of literature on drugs into an operational team of eleven. Considerable time was devoted to organizational and technical matters, staffing, and training. An Ad Hoc Advisory Panel was convened on April 20. This group, composed of educators, hospital employees and members of individual organizations representing the various disciplines concerned with the development and distribution of drugs, provided program guidance.

The MEDLARS Auxiliary Chemical Module was brought from the planning stage into detailed design and implementation phases. Mechanisms were established for communicating with the variety of program audiences through representative consultants and formal and informal contacts with key professional societies. Studies were initiated to identify gaps in the Library's holdings of drug-related literature and systematic procedures were set up to assure the completeness of the collection. Pharmacy and pharmacy-related journals were analyzed with a view to compiling a list of those recommended for indexing. In work with the MeSH group, new headings and subheadings for the improvement of drug terminology were recommended. A pilot toxicity bibliography was published and distributed for critical review.

Progress in Attaining Program Objectives

1. Collection of All Published Literature on Drugs. By the end of the fiscal year, over 700 orders amounting to $25,370 had been placed for drug or drug-related literature, including monographs, periodicals, card services, and compendia of various kinds.

2. Expansion of Coverage of Drug Publications. A study was made of journals published throughout the world. A list of those not now being indexed for MEDLARS will be submitted to a panel of experts for review and recommendations as to those which should be considered to broaden MEDLARS coverage.

3. Vocabulary Improvement. To achieve deeper and more precise indexing of drug-related journals, much effort was devoted to improving pharmacological terminology in Medical Subject Headings. Several headings and subheadings were recommended by the DLP staff, and a coordinated effort was initiated with the American Society of Hospital Pharmacists to bring MeSH terminology into greater

coincidence with that of the Hospital Formulary Service. In cooperation with the American Society for Pharmacology and Experimental Therapeutics, a panel was initiated to advise the Library on autonomic drug terminology. Another panel was established in cooperation with the Society for Toxicology to advise on toxicology terminology. Several meetings are planned for each committee during the Fiscal Year 1970.

A major factor in the strengthening of MEDLARS indexing and searching functions in the drug area will be the Auxiliary Chemical Module. Meetings were held with the Food and Drug Administration, National Science Foundation, and Chemical Abstracts Service. A resulting contract with Chemical Abstracts Service was signed at the end of the year. A contract had also been signed with Informatics for necessary reprogramming to link chemical information in the Auxiliary Chemical Module to MEDLARS. By the end of the year, extensive work had been done on the technical details of systems and procedures and on other preparation of material for the common data base, which will initially contain 40,000 terms. When operational, the Auxiliary Chemical Module will permit the compilation of synonym lists; input of drug and chemical names without reference to authority files; the retrieval of all references to a drug regardless of the name used and whether or not it is a MeSH heading; the publication of lists of new drugs; and a semi-automatic means of updating MeSH drug headings when the frequency of mention of a drug in the literature signals the desirability of adding it to MeSH.

4. Expansion of Reference and Search Service. In addition to manual and machine searches performed on an individual basis, specialized monthly bibliographies on drug toxicity have been supplied to such organizations as the American Medical Association and the Food and Drug Administration throughout the year. At the meeting of the Ad Hoc Advisory Panel in April, it was recommended that NLM issue a pilot toxicity bibliography. The publication would be distributed to a selected group of experts who would make recommendations for its development before formal publication and general distribution. By the end of the fiscal year, sample copies were being printed and the mailing list had been prepared.

Plans were also well under way for the publication of a Cancer Chemotherapy Bibliography in cooperation with the Research Communications Branch of the National Cancer Institute.

The number of drug searches handled increased in proportion to the total number of searches, being approximately 30 percent of the total. (See table below for comparison of the months of May and June.)

Comparison of Percentage of Drug-Related Searches
May and June 1965 and 1966

May-June	Searches Released Total	Drug-Related Searches Released	Percentage
2 months-1965	396	109	28
2 months-1966	538	156	29

With a view to expanding the Library's search service beyond what can normally be handled internally, a formal agreement has been signed with the Pharmaceutical Manufacturers Association for four two-year library traineeships. Under this arrangement, three individuals with library training and one with a systems and computer orientation will be employed by the PMA, and, working with DLP and other NLM program staff members, will learn MEDLARS indexing, searching, and programming procedures. During and after the training period, they will serve as liaison between the Association and the Library to facilitate the extension of MEDLARS services to the pharmaceutical industry.

5. Provision of Support for Other Services. The DLP has been concerned with the support of abstracts done under an NLM Extramural Program contract with the Israel Program for Scientific Translations. Eight issues of Drug Digests, a pilot project providing summaries of foreign articles in the drug area were distributed and this program is being evaluated. The Library has also supported the production in Israel of abstracts. These have been used by the Food and Drug Administration for its Medical Literature Branch Abstracts.

A contract has been signed with the Chemical Abstracts Service for the editing of the second edition of the Russian Drug Index, compiled by Stanley Jablonski. The Head of the DLP has been named Project Officer. It is hoped that this edition will be published in the Fall.

6. Training. During the next fiscal year, the DLP staff will continue their training program in order that their technical recommendations be based on full knowledge of MEDLARS and the Library. Now that the program has been well launched and the initial training effort made, the proportion of training effort to total manhours expended should level off and decline before the end of the year, releasing more time for program activities.

TECHNICAL SERVICES DIVISION

On November 14, 1965, Mr. James P. Riley succeded Mr. Samuel Lazerow as Chief of the Division.

Change, innovation, and re-evaluation of existing processes marked the Technical Services Division operations during the Fiscal Year 1966. Following concentrated study of problems and their proposed solutions, several recommendations were made for improvements to increase productivity, improve efficiency, and provide the biomedical community with faster and more comprehensive service during Fiscal Year 1967. Significant program developments were: (1) the design and implementation of the computerized Interim Catalog Module; (2) publication of the biweekly Current Catalog; (3) establishing the Express Cataloging Service; (4) increased cooperation in acquisition and cataloging with the Library of Congress and the National Agricultural Library; and (5) expanding the National Library of Medicine's scope and coverage to include veterinary medicine.

Plans were developed to (1) increase blanket orders placed with publishers and book dealers, (2) revise the Serial Record, (3) revise acquisition procedures and controls, (4) increase exchange activity, and (5) automate the searching and procurement functions.

Design and Implementation of the Computerized Interim Catalog Module. Following a detailed study of technical services procedures and visits to other medical libraries (Yale, Harvard, Columbia, Washington University), the library at Florida Atlantic University, and the Library of Congress to observe methods of selection, acquisition and cataloging, a computer system design linking the phases of selection, citation searching, acquisition, cataloging, and maintenance of serial records was completed in October 1965. The NLM assigned first priority to the cataloging phase: the Interim Catalog Module. The term "interim" was chosen because implementation of the total system for the Division is expected to change the catalog module. The Interim Catalog Module produces the National Library of Medicine Current Catalog (published biweekly, with quarterly and annual cumulations) and catalog cards for the NLM public card catalog.

Publication of a Biweekly Current Catalog. In January the Library began to publish the National Library of Medicine Current Catalog. This constitutes a current selection, acquisition, and cataloging tool for the biomedical community. The annual

cumulation of the new Current Catalog supersedes the earlier NLM Catalog, published annually since 1956. The NLM Catalog will make its final appearance in 1966 as a sexennial volume incorporating all NLM catalog cards issued from 1960 through 1965.

For the NLM Current Catalog, major American medical book publishers furnish the Library with an advance copy of every new title immediately upon publication. The Library catalogs these publications with all possible speed (Express Cataloging Service) and processes the information on its computers to produce a biweekly listing of citations to all new books and serial titles cataloged during the preceding two weeks.

Catalog citations contain the same bibliographic information that appears on the Library's catalog cards, thereby providing other libraries with catalog copy for their own use. Citations include the cost of the item when available.

Biweekly issues of the Current Catalog contain author/title citations to publications cataloged and a directory of publishers. Quarterly and annual cumulations have both an author/title section and a subject section.

NLM's computer-driven GRACE (graphic arts and composing equipment) prepares film copy from which Government Printing Office contract printers produce the NLM Current Catalog by photo-offset. The NLM Current Catalog is sold by subscription by GPO for $15. (See Appendix XI for the complete list of publications.)

Establishing an Express Cataloging Service (ECS). In an effort to list in the NLM Current Catalog the most up-to-date information regarding biomedical publications, seventy-six medical book publishers, both in the United States and abroad, have agreed to send advance copies to the Library. When these publications reach the Library, they are speedily processed through the Express Cataloging Service Program; this assures their being cataloged within 48 hours. Thus, the Current Catalog often provides full cataloging data for publications even before the publisher's actual release date.

Increased Cooperation with the Library of Congress and the National Agricultural Library. There has been an unprecedented effort during the past year to increase and strengthen interlibrary cooperation. Staff members of the three libraries met to discuss shared cataloging and cooperative acquisition programs, with the hope of eliminating some duplication in these areas. It is recognized, however, that the requirements of each library's clientele

probably necessitate some overlap in scope and coverage and in cataloging. Arrangements were made for NLM to assist the Library of Congress in its national program for acquisitions and cataloging (Title II C of the Higher Education Act, 1965) by forwarding card catalog copy for each publication cataloged here. When libraries request cataloging information pertaining to those titles which LC records indicate are in the NLM collection, LC will request the publication through interlibrary loan, and thus preclude the purchase of that item for its own collection.

Discussions have been held with National Agricultural Library staff on the cooperative development of a thesaurus of veterinary medicine. The first step has been to organize a committee with representatives of NAL and NLM and outside consultants.

The Library continues to receive duplicates in substantial quantity and quality from both national libraries of current American medical books. In addition, the staff of the three national libraries have participated in meetings of the Acquisition Task Force and the Procurement Task Force of the Federal Library Committee.

Expanding Scope and Coverage to Include Veterinary Medicine. With the appointment of a Coordinator for Veterinary Affairs in January, the Library began to expand its scope and coverage in veterinary medicine, animal husbandry, and zoology. Material in veterinary medicine will be collected exhaustively; material in the other two categories will be collected far more sparingly, except for genetics.

SELECTION AND SEARCHING SECTION

Selection Activities. Under the direction of the Coordinator for the Development of the Collections, monthly conferences were held to review, interpret, and expand the scope and coverage policy and to answer specific questions concerning the selection of non-core materials. A revision of the Library's scope and coverage manual is planned.

Bibliographic control of biomedical literature is ensured, as in the past, by having area specialists select titles from national bibliographies and other publications. In addition, publishers' participation in the Express Cataloging Service promises to alleviate some of the area specialists' selection problems. Plans are being developed to reduce the time-consuming burden of selection by initiation of blanket orders with reputable book dealers throughout the world. Such blanket orders would direct the dealers to select and supply directly to the Library all biomedical publications

except those which are received from publishers participating in the ECS.

The collection was considerably strengthened by the acquisition of materials requested through interlibrary loans and found to be wanting.

Exchange. The Selection and Searching Section has the responsibility for all foreign exchange operations. To insure smooth operation and a steady flow of materials from exchange sources, procedures were established for monitoring and evaluating exchange agreements. The major NLM publications used for exchange in the past were Index Medicus and Bibliography of Medical Reviews. Added to these during the year were the NLM Current Catalog and indexes published in cooperation with outside organizations, such as Index to Dental Literature and International Nursing Index.

New Chinese Bibliography. The NLM Current Holdings of Mainland Chinese Journals, a bibliography of the Library's holdings of current Mainland Chinese serials up to October 1965, was compiled by Stephen Kim, Oriental Area Specialist.

New Bibliographic Sources. Eight bibliographic sources were added to the list of prospects examined for regular selection, bringing the total of such bibliographies to 236. The new sources are:

1. Union Catalog of Philippine Publications on Science and Technology. Manila, Philippines. National Institute of Science and Technology. Division of Documentation, irr. Z7407.P5 qP552u

2. Nijhof information; books and periodicals from the Netherlands in foreign languages - Livres et periodiques... Bucher and Zeitschriften...Hague, 1965- b-m.

3. Sci-Tech book profiles. New York, Bowker. m. Ref. Z/7401/S412

4. Medical book profiles. New York, Bowker. m. Ref/ZW1/M486S.

5. Index to Indian Medical Periodicals, New Delhi. s-a. ZW1 13855

6. Euratom Information. Dusseldorf. m. W1 EU575.

7. The Monthly List of Chinese Books. Taipei. National Central Library. Taipei, Taiwan. v.1- 1959- a.

8. Tartu. Ulikool. Teaduslik Raamatukogu. Bibliograffa. Tartu. a. Z2533 T195t.

ACQUISITION SECTION

Approximately 15,000 orders were placed during the year for $165,000. Included in this sum was an obligation of $25,000 for purchase of materials for the Drug Literature Program.

Serial Record. The transfer in late Fiscal Year 1965 of Index Medicus journal data from the Serial Record Kardex to a separate tub file has provided better control of checking and claiming these important titles. Arrangements were made to ship by air freight all Index Medicus journals published in Western Europe (about 1,250), starting with Fiscal Year 1967; this will reduce the shipping time from 6-8 weeks to 3-4 days and expedite the checking-in-process.

Plans were developed to completely rearrange the serial record file and the Kardex. The new system will be easier to use, provide more space for unit record data and will require less space. The new system is being designed with an eye toward future automation.

CATALOGING SECTION

With the initiation of the Interim Catalog Module, the Catalog Maintenance Section was absorbed by the Cataloging Section. The transition was smooth. Personnel were able to adapt easily to the new procedures and practices dictated by the computerized cataloging program. This, however, required both a training and learning period for the entire staff and experiments to determine work flow and measurement. Even though the training and experiments proceeded smoothly, there was a loss of cataloging time, so that fewer items were cataloged than in the previous fiscal year.

The first six months of the Current Catalog have been successful: the cataloging staff met the estimated production demands (400-500) titles cataloged during each ten-day working period) and kept up the rigid schedule demands of input and corrections; the first quarterly cumulation was produced and dismounted and work was completed for the second quarterly; and many libraries began to use it for their cataloging and classification. The Veterans Administration, in particular, converted its entire cataloging to the NLM system and the Bibliotheque Nationale of France has recommended that all French medical libraries begin using the Current Catalog for its cataloging and classification. Also, the Medical Library Association and American Hospitals Association have praised and promoted the work highly, recommending that biomedical librarians use it for

selecting, acquisition, cataloging, and interlibrary loan source. At the end of Fiscal Year 1966, there were 800 subscribers.

NLM Classification. With the publication of the Current Catalog, a growing number of medical libraries, both here and abroad have announced plans to adopt the NLM Classification. An updated edition which would include a new modified Library of Congress classification for non-medical and related materials, is planned.

Special Projects

NLM Current Catalog Promotion. The Division Chief addressed the Technical Services Directors of Large Research Libraries, ALA, the Association of the American Medical Book Publishers, the Medical Library Association/NLM Liaison Committee, and the 65th Annual Meeting of the MLA on the Current Catalog. The reaction to the publication has been generally enthusiastic and, often, grateful.

In addition, 4,000 sample copies with subscription announcements were mailed to members of the Medical Library Association, Special Libraries Association, and American Hospital Association, and to those on the NLM Publications and Translations Division mailing list.

AID/NLM Agreement. Through an interagency agreement with the Library, the Agency for International Development is making available a number of services to U.S. AID Health Missions. Developing countries are thus helped to expand the intensify their biomedical library programs in order to make directly accessible the relevant published information concerning specific problems of nutrition, population growth, and better health. (See Appendix XX for list of participating countries.)

Present services include the following: (1) interlibrary loan service (subject to NLM regulations); (2) bibliographic searches on medical subjects, made in response to direct requests from investigators, physicians, or librarians in a host country, of officials of AID; (3) one hundred subscriptions to Index Medicus, available to AID to help improve the bibliographic capabilities of a medical library in a host country; and (4) fifty thousand U.S. Book Exchange credits, made available by the Library for requesting surplus journals, books, and monographs from USBE.

The agreement has been quite satisfactory to date, and U.S. AID recommends that its Missions stimulate and encourage biomedical professional personnel and medical libraries in host country to utilize NLM services.

BIBLIOGRAPHIC SERVICES DIVISION

In May 1966, Clifford A. Bachrach, M.D., transferred from the National Heart Institute, National Institutes of Health, to become Chief, Bibliographic Services Division. He succeeded Leonard Karel, Ph.D., who became Special Assistant to the Associate Director, Intramural Programs, in charge of Specialized Information Centers.

During FY 1966 more medical articles were indexed than ever before. In FY 1966, 164,545 journal articles were indexed as compared with 151,633 for FY 1965. The total number of article citations retrievable by computer search increased by more than 50 percent from approximately 300,000 to over 450,000.

Demand Searches. The number of demand bibliographies produced upon request during the year was approximately twice as great as in the previous year, increasing from 1,623 to 3,035. This may be attributed to a more widespread public knowledge of the availability of this bibliographic service, as well as to the increasing value of these searches as the MEDLARS file expands. The increased demand bibliography output is gratifying in the light of the other burdens imposed upon the Search Section during the year. Toward the end of the fiscal year, increasing requests resulted in a backlog making it necessary to defer all foreign requests except those coming from AID countries.

In April 1966, the Veterans Administration closed its MEDLARS Unit, which was located at the National Library of Medicine under Dr. Charles Chapple, and the VA requests were absorbed by the NLM's Search Section.

More complex search formulations resulting from computer program limitations in handling searches involving subheadings caused a major slowdown. A new card input program for processing demand searches was delivered in May and parallel testing began in June. This new procedure is designed to simplify search formulation, and is expected to cut the processing time considerably, and will diminish the number of searches rejected by the computer.

As the year progressed, the training and MEDLARS regional center liaison functions demanded more and more personnel time.

Recurring Bibliographies. The most important recurring bibliographies in this expanding program are Index Medicus, Cumulated Index Medicus, and Bibliography of Medical Reviews. In addition, there are bibliographies on broad subjects, produced in cooperation with national organizations which agree to publish and distribute the bibliographies widely on a nonprofit basis. At the end of FY 1965,

there were Cerebrovascular Bibliography, Index of Rheumatology, Fibrinolysis, Thrombolysis, and Blood Clotting and Index to Dental Literature. Added during FY 1966 were Medical Education and the International Nursing Index. Over a dozen additional recurring bibliographies are in various stages of negotiation, or in preliminary stages of formulation.

Several new computer capabilities were made available such as the printing of tracings accompanying the citations, and computer-produced author and subject indexes to the citations.

The production of recurring bibliographies has proved to be more complicated than seems to have been anticipated, partly because customer needs and MeSH terms are never static, and partly because the process of initiating the necessary changes is unduly burdensome with the present computer programs. Steps are being taken to overcome the latter difficulty.

Recurring Demand Searches. To meet the need for a current awareness service that is too specific to qualify as, or to justify, a recurring bibliography, the Library began providing recurring demand bibliographies in 1965. Sixteen recurring demand searches are being issued at regular intervals.

Indexing. Articles were indexed at the same rate as last year (5.7 articles/hour). The tremendous increase in the number of articles to be indexed, the increased scope of journal coverage and the shortage of qualified indexers, however, necessitated the use of overtime. Overtime produced 22,829 articles at an average rate of 11.7 articles per hour and made possible an increase of 12,910 articles over FY 1965, for a total of 164,545 biomedical journal articles indexed for FY 1966.

During the year, staff members of the American Dental Association and the American Journal of Nursing Company were trained as indexers. These persons now index journals for inclusion in Index Medicus, and additional journals in their particular subject areas for inclusion only in recurring bibliographies.

Revision. Because a high proportion of indexing is now being done by trainees, or by indexers with limited experience, 66 percent of indexing was revised in FY 1966 to insure accuracy and consistency. This is about the same as the 65 percent in FY 1965, but greatly exceeds the 44 percent of indexing revised in FY 1964 when substantially less indexing was done by fewer persons, a higher proportion of them fully experienced.

Occupational Health Abstracting Project. The agreement to provide the Bureau of State Services, Public Health Service, with abstracts of all American articles on occupational health and industrial medicine was continued. Five hundred and fifty-one abstracts from 69 journal issues were prepared here and sent to the Robert A. Taft Sanitary Engineering Center in Cincinnati, Ohio. Abstracts of three hundred and thirty-eight articles were sent in FY 1965.

Cyrillic Bibliographic Project. The Index Section provided the Library of Congress with Xerox copies of bibliographic and data abstracts for all East European and Russian articles indexed for Index Medicus, this year over 150,000 articles. The project carried on under an agreement with the Library of Congress was discontinued in May 1966, although formal discontinuance had not been received at the end of the fiscal year.

Bibliography of Medical Reviews. Indexing for Volume 11, 1966, of the Bibliography of Medical Reviews was completed on October 8, 1965, with the completion of indexing for the 1965 issues of Index Medicus. Volume 11 contains 4,071 review articles.

List of Journals Indexed in Index Medicus (LJI). The 1966 edition of List of Journals Indexed in Index Medicus contained entries for 2,419 journals; this represents the addition of 75 new titles for indexing and the deletion of 109 titles not received at NLM for the past three years or longer. Publication of the separate edition of LJI was delayed in order to include two new sections: a subject list of journals indexed, and a geographic list of journals indexed. These two new sections, in addition to the regular abbreviation and full-title listings of journals indexed, will add greatly to the usefulness of the LJI.

An ad hoc panel of extramural advisors met with the Library personnel three times during the year to evaluate critically the quality and scope of the periodicals to be included in Index Medicus. The deletion of 160 periodicals and the addition of 502 others was recommended. The panel urged that this additional periodical indexing be begun at the earliest possible time.

Training. Classes for indexing and search training have been organized on a regular schedule. The full combined training was initially planned as a six-month course. This was reduced to four months, but further experience led to reversion to the six-month schedule. Mrs. Thelma Charen of the Index Section and Miss Charlotte Kenton of the Search Section, with selected assistants, have conducted the classes.

INFORMATION SYSTEMS DIVISION

In September 1965 the Data Processing Division was renamed Information Systems Division. In addition to continued expansion of MEDLARS operations at the Library and in decentralized search centers, the Division's staff implemented the Interim Catalog Module which produces the NLM Current Catalog on the Library's computer equipment. New activities in the Division included the design of an evaluation project for MEDLARS demand searches, systems design for an Auxiliary Chemical Module, and initiation of an effort to produce specifications for a new computer system. The Division's programming, input, and computer operations staffs have been engaged in support of these new and expanded activities as well as in continuing MEDLARS operations. Mr. Paul C. Redmer has been acting Chief of the Division since April 1966 when Mr. Charles J. Austin left to join the staff of the Secretary, D-HEW.

MEDLARS Expansion. During Fiscal Year 1966 the Division continued to improve and expand MEDLARS operations. Subheadings were introduced in Index Medicus in January 1966. Special Author and Subject Indexes as an option for recurring bibliographies were developed. The average monthly volume of demand searches by the end of the year was over 300. The number of articles cited in the monthly issues of Index Medicus rose from 156,783 in FY 1965 to 167,947 in FY 1966. The 1965 Cumulated Index Medicus, a four-volume set of 6,327 pages was processed utilizing the computer and GRACE. The same equipment was used to produce seven recurring bibliographies during the year. The MEDLARS Compressed Citation File which is used for demand search processing contains 422,000 citations on magnetic tape covering the period of January 1964 through June 1966.

MEDLARS Decentralization. MEDLARS expansion included three new contracts to provide decentralized search centers. The University of Alabama Medical Center, the University of Michigan, and Harvard University all entered the training phase of their development. The University of Colorado Search Center expanded its coverage to the Rocky Mountain states and UCLA began initial processing of demand searches. Overseas, a search Lending Library of Science and Technology and the University of Newcastle-upon-Tyne. A second overseas search center is developing at the Karolinska Institutet in Sweden.

Interim Catalog Module. Implementation of the Interim Catalog Module in January 1966 gave the Library a major new automation capability. Utilizing the existing MEDLARS computer, the Division programming staff met its schedule for initial production of the biweekly and quarterly NLM Current Catalog as well as catalog cards for the Library's public catalog. By the end of the fiscal year,

13 biweekly issues and the first quarterly issue of the NLM Current Catalog had been produced and a total of 6,017 citations were stored on magnetic tape. A total of 80,000 catalog card images were produced on photographic paper using GRACE. Microfilm, Xerox, Copyflow, and cutting operations in the Reference Services Division completed physical preparation of the cards.

Systems Activities. Among new activities in the Division was the preparation of a test design for a project to evaluate the performance of MEDLARS demand search retrievals in terms of user satisfaction. The design was submitted to an advisory committee for criticism and improvement and a pre-test was conducted. This project will involve data collection and analysis of 400 demand searches in FY 1967. It is anticipated that the findings will have a major influence on future improvements to MEDLARS.

Systems design work for an Auxiliary Chemical Module for MEDLARS as part of the Library's Drug Literature Program was completed. This Module will take advantage of the registry system at Chemical Abstracts Services and will provide the Library's users with a number of products, including bibliographies produced by MEDLARS after searching of an Auxiliary Chemical File. At the end of the year, a contract for programming assistance was signed with Informatics, Inc. to minimize the implementation period for this effort.

Planning for a new computer system capable of meeting all the Library's data processing requirements began in FY 1966. To supplement its small systems staff, a contract was signed with Auerbach Corporation to produce equipment specifications and a broad design for functions of the new system. This effort will also produce definition of subsystems and on implementation schedule. An initial new computer equipment installation is anticipated in FY 1968. The Division will be engaged in detailed design and conversion programming in late FY 1967.

Programming Activities. In addition to the major programming efforts represented by the Interim Catalog Module and special index capabilities for recurring bibliographies (ititially used in the Cerebrovascular Bibliography), the Division's programming staff successfully implemented the changes necessary for utilization of subheadings in MEDLARS and production of special literature searches of general interest on GRACE copy for broad distribution. Numerous minor improvements, such as the ability to print tree-structures of Medical Subject Headings on GRACE were also made to MEDLARS. A number of significant improvements to the Demand Search Module were in final testing at the end of the year. These will remove many current restrictions on search formulation, convert search input from paper tape to card media, and reduce computer time used for demand searches.

Operations. The Input Unit typed and proofread 167,947 citations appearing in the FY 1966 issues of Index Medicus, an increase of 7 percent over FY 1965. This Unit also typed and proofread 6,017 citations appearing in the NLM Current Catalog during the last six months of the year. In addition, approximately 3,000 demand searches were typed and proofread during the year. Backlogs were kept to an operating minimum most of the year and personnel turnover was markedly reduced compared to previous years.

Computer operations expanded to a three-shift basis, including most weekends. GRACE was more heavily used as indexes to NASA's STAR were added to its production load. GRACE was used to produce 56,394 pages as the Computer Unit met 70 publication and proof-copy deadlines during the year. Equipment performance continued basically good, although GRACE was inoperative for a two-week period in May due to mechanical difficulties which required factory assistance. Tape copying for search centers with IBM computer equipment was initiated on a routine basis in FY 1966.

COMPUTER UTILIZATION

	FY 1965	FY 1966
Production	2,182:05	4,888:16
Program Checkout	1,374:48	1,393:19
System Testing	45:06	116:50
Use by Other Agencies	20:59	115:15
Lost Time	15:12	152:12
Total Use	3,638:10	6,665:52
Machine Downtime	30:45	89:14
Performance	99.2%	98.8%

REFERENCE SERVICES DIVISION

Mr. Samuel T. Waters was appointed Chief, Reference Services Division, on June 27, 1966, succeeding Dr. David A. Kronick who resigned, effective November 30, 1965, to become Librarian of the South Texas Medical School. Dr. John B. Blake served as Acting Chief from December through March, and Mr. Edward A. Miller served from April through June.

There were two significant changes in program responsibility during FY 1966. The preparation of comprehensive conventional bibliographies was transferred to the Bibliographic Services Division, and the preservation program was expanded in volume and in scope. Prerequisite to expansion of the preservation program was the development of a sound foundation for a graphic image program through contract filming. This required a sizeable effort for the development of specifications, orientation of contractors, and evaluation of proposals.

NLM/NBS PROJECT TASK FORCE FOR GRAPHIC IMAGE STUDY

In October 1964 the Library entered into a first phase technical consulting service agreement with the Center for Computer Science and Technology of the National Bureau of Standards. The agreement provided for studies to improve the quality of NLM photoduplication products and the development of specifications for microimages suitable for current preservation work and practical for future graphic image systems. The accomplishments of the team are partly related in a November 1965 publication of the National Bureau of Standards--A Study of Requirements and Specifications for Serial and Monographic Microrecording; A Report to the National Library of Medicine, by Edward J. Forbes and Thomas C. Bagg. This 68 page report, issued in a limited edition, furnished the basis for the technical specifications for both contract and in-house filming operations. In addition, the task force modified and rehabilitated existing equipment and designed a voltage regulation system for individual cameras and a fine voltage control for preservation work. Installation of these components of the power supply system was about 60 percent completed at year's end. Additional improvements to all cameras are under study.

PHOTODUPLICATION SECTION

Output of microfilm from the Photoduplication Section increased by almost 20 percent over the previous year, reflecting modifications

and better maintenance of cameras and increased staff authorization and appointments. While production of copy for interlibrary loan held almost even with last year, filming for preservation purposes increased by 600,000 pages, to a level of 1,300,000 pages filmed and processed during the year.

The Section introduced many improvements in instrumentation and control last year: the reduction ratio was standardized at 12 to 1; cameras were pinned and lenses were fine-tuned; a regulated power supply system with fine voltage control was designed and tested; quality control measures were installed; new filming routines were adopted. Despite numerous problems as changes were made, production for interlibrary loan and internal operations moved on schedule with relatively minor disruption. A large part of these accomplishments were due to the work of Messrs. Thomas Bagg, James Strohlein, Leonard Cahn, James McNally and Joseph Brown, NBS engineers and technicians, who evaluated a mass of technical data, designed and installed electronic and mechanical components, and assisted the Section on the occasions when major breakdowns imperiled production.

Card Production. Xerographic production of cards increased by 77 percent during the past year. The total production of over 222,000 card units included 80,000 3 x 5 inch cards for the name, subject and shelflist catalogs and 142,000 cards for the selection and ordering processes. The catalog card process, inaugurated in December, is a by-product of the biweekly catalog program. GRACE printouts of bibliographic citations for the Current Catalog are converted into 3 x 5 inch card sets for the various Library files, with the six-point GRACE type enlarged to eight-point size during the process.

Film Processing. When the Versamat film processor was acquired two years ago to process the phototypesetting product of the GRACE component of MEDLARS, the machine was also considered capable of processing intermediate microfilm used for hard copy production. During twenty-one months of microfilm processing, production remained fairly constant, averaging 11,000 feet per month. The 1966 total was 134,000 feet. Production of phototypesetting products increased dramatically from a monthly average of 1,500 feet in FY 1965 to 4,700 feet in 1966, primarily reflecting the introduction of the catalog card procedure described above. The total for 1966 was 56,400 feet. Use of the Versamat for processing of preservation film has not been attempted because of equipment and chemistry problems.

Film Duplication. A Kalvar Multi-Mode Reproducer was acquired for production of service and distribution copies of NLM camera negatives. The machine is capable of producing a direct or reversed

image in a single generation. During FY 1966, 897 reels were duplicated, including 756 for NLM service files. The remaining 141 reels were external orders.

Pictorial Service. Responsibility for press photography and quality reproduction of NLM art materials was transferred to the Exhibits Director in mid-September.

Equipment.

CopyFlo. The capacity of the CopyFlo printer has been doubled. The conversion in February required installation of new drive motors, a special cooling device for the paper drive rollers, and modification of the heater power supply system (cost $3,000). A modification of the feed roller mechanism permits the use of reground rollers at an estimated saving of $100 per set.

Microfilm Reader. A Lodestar Cartridge Reader was acquired for more efficient retrieval from high-usage film files such as the Dictionary File of BSD and the unprinted Index-Catalogue subject and biography files.

Maintenance and Repairs. Inadequate local repair and maintenance service for such key items as the Versamat, slow repair service on other items, plus needed repairs of NLM modified stock items have created a number of critical problems in maintaining production. The immediate solution has been to increase the spare parts inventory and increase in-house preventive maintenance measures. During the past year, machine parts and components were also borrowed from the Patent Office, National Bureau of Standards, National Institutes of Health, and the National Geographic Society as need arose. In addition, the machine shop facilities of several government agencies were utilized for emergency service.

Film Deterioration. Though the causes of film deterioration are better understood, we lack information as to the efficacy of recommended control measures. Methodology for determining blemish appearance in films fixed with the newer chemistry will be developed during the coming year. Detection of deterioration of older films appears to be impracticable at this time in view of the microscopic nature of the blemishes.

REFERENCE SECTION

Reorganization. Recommendations of the Donnald Report (see organizational study, page 9) were implemented. The Bibliographic Services Division assumed the responsibility for the preparation of long bibliographies and response to questions involving extensive research. Six Reference Services Division positions were transferred

to Bibliographic Services Division to handle this program. The Section was restructured to respond to shorter reference inquiries. Although one-fourth of the mail requests for reference services were diverted from the Section to BSD, reader and phone requests increased. The total number of requests surpassed the previous year.

Reader Service. The number of readers registered increased by 2.5 percent over the previous year. Service to readers from the stack areas increased 13.4 percent. The seating capacity of the Reading Room overflowed on several occasions into office space. Sampling of the reader's register and comparisons with previous studies revealed that the student ratio has risen in two years from 41.5 percent to 68 percent. Further study showed substantial study hall usage by non-biomedical students. These users now are being identified, and are asked to relinquish their space to biomedical personnel when necessary.

Annunicator. The annunciator system for notifying readers of material ready for pickup has 32 positions which is only one-quarter the capacity needed. Peakloads often exceeded 100. Methods for expanding the system are being developed.

Special Facilities. Thirteen study rooms are available for investigators with special requirements. Three immediately adjacent to the Reading Room are assigned on a daily basis for group conferences, typing, dictating or use of audiovisual materials. The remaining ten, located in stack areas, are assigned on longer term basis to authors and mission-oriented project teams. Eight additional study units (carrels surrounded by screens) on A-level are available for users with special needs. The demand for these facilities continues to exceed the supply. The study unit facility will be expanded to 16 units during the next fiscal year. Further expansion of study rooms is under consideration.

LOAN AND STACK SECTION

Overall use of the collection increased during the year by 5.6 percent to a new total high of over 243,000 requests filled. Six thousand more interlibrary loan requests were received than in FY 1965. The adoption of a stricter policy of rejections for material known to be available locally and for excessive use by individual borrowers prevented an even greater increase. Interlibrary loan requests for unavailable materials declined from 13.5 percent in FY 1965 to 11.1 percent. Reader requests for unavailables were dropped from 10.6 percent to 8.1 percent. A large part of the decline apparently resulted from bypassing catalog maintenance with volumes returned from the bindery and thus reducing the backlog

of materials held in TSD. Other important factors were the orientation talks and professional reviews of non-availables instituted at the beginning of the year to increase the pages' awareness of the non-available problem; the assignment of an additional library assistant to follow-up searching; and the addition of Indexing Section to the areas searched for non-availables. Collection control problems have increased substantially in the last few years as new programs developed and older programs expanded. To obtain further improvement in the rate of requests located, the Division has suggested the acquisition of multiple copies, improving inter-divisional routing and processing procedures, and development of a continuing shelfreading program.

Stack Maintenance. A shelfreading program on B-level was instituted late in FY 1965, to locate misshelved volumes and to collect deteriorated or unbound materials for binding or filming. The program was successfully continued until the end of November, at which time 30 ranges had been completed; in December, a halt was imposed by staff shortages and the assignment of professional and supervisory staff time to the expanded microrecords program. Since December, several trucks of newly acquired theses also accumulated on B-level. These remained unshelved. Within the next months it is planned that this program will be completed and shelfreading will be resumed. About 7,500 of the theses have already been sorted and filed by summer students.

The serial collection is increasing, and virtually all the A-level shelf space has been filled. This collection will have to be relocated. Because shifting the collection will create considerable confusion and because a sizeable number of people (100 man days estimated) will be needed to complete the job, the move must be made during non-working hours so that there will be minor disruption of loan operations.

Use of Kalvar Microfilm for Interlibrary Loan. The expanded microfilm program provides filmed copies of older journals which Loan and Stack is able to use for interlibrary loan, thereby eliminating a filming and copying operation. Such film loans can be made because of infrequent calls for the older volumes--there is little likelihood of requests for material on loan--and because of the ease and low cost of film reproduction which makes the possibility of loss in the mail less crucial.

Equipment. Trial use of book trucks equipped with hard rubber tires showed a substantial improvement in mobility. Ten sets have now been installed and the remainder will be converted during FY 1967.

Use of Teletype Facility for Interlibrary Loan. The installation of a teletypewriter makes it possible for NLM to accept interlibrary loan requests via TWX. The facility became operational in mid-May and was announced in the June issue of the NLM News. Reaction from other libraries has been favorable and increased use is anticipated.

Air Mail. To speed the flow of information to requestors, the Library has instituted a policy of sending interlibrary loans by air mail whenever feasible.

PRESERVATION SECTION

Microrecords Unit. There was a greater emphasis on Microrecords work during FY 1966. With added staff for preparation and filming and supplemented by contracts for outside filming, it has been possible to begin an expanded program of microfilm preservation. The former program of filming isolated small runs of extremely deteriorated segments of the collection, with destruction of the originals, has been abandoned. The new program calls for complete filming of titles; evaluation of sets by RSD and HMD for archival and reference value; and retention of originals and gap-filling on the basis of this evaluation. The eventual goal is complete filming of the older portions of the collection under the highest technical and bibliographic standards possible. One important facet of the program is the reporting of completed work to the National Register of Microform Masters so that copies of the film eventually will be available to other libraries.

The training of new personnel and establishment of new routines was begun in November. Since that time, approximately 1,023,000 pages have been collected and collated for in-house filming and 736 reels of preservation film have been edited, reported, and stored.

Contract Filming. In addition to the material filmed by Photoduplication Section, two contracts for the filming of 1,000,000 pages each were signed during the year. University Microfilms, Inc., began work in April, with a contract completion date of October 15, 1966. The first shipment is expected in July. The second contract, awarded to Microcard Corporation, was signed late in June and called for delivery of 30,000 pages in July. With the two outstanding contracts, plus a third to be written for 2,000,000 pages, a total off-premise production of over 4,000,000 pages is expected in FY 1967 in addition to an estimated in-house output of 2 to 3 million pages: in all, an increase of 6 to 7 million pages in its film collection.

Binding Unit. Two important improvements in binding procedures were instituted during the year. The first resulted from an automation procedure for serials by the Library's binding contractor, the

Hertzberg-New Method Company. NLM can now identify titles on binding instruction slips using a preassigned number only, thus eliminating the requirement for typing spine lettering on the slip. This is particularly advantageous with complex titles and corporate bodies. The second improvement was the adoption of the Avery cloth label, a pressure-sensitive label which can be prepared on a typewriter. Application of this label has proved much faster than either the old method of stylusing or use of the heat-applied label provided in the Council of Library Resources' Selin System. New labels on the books sent to the Reading Room, where use is heaviest, have been closely inspected and no cases of peeling have been discovered. The appearance as well as the legibility of the Avery label are an improvement over the stylused markings. During FY 1966 18,775 volumes were bound on contract at an estimated cost of $52,000.

Injury to Filmed Materials. The Library's new microrecords project has resulted in damage to some of the original material during filming. Of the 20 titles (698 volumes) forwarded to Binding Unit by Microrecords, 269 volumes were too badly injured for continued use and 98 required rebinding.

The use of the damaged materials must be restricted. Copies for interlibrary loan must be made only from the film copy. The damaged materials have been marked to indicate when a volume is restricted to use with careful handling, or for Reader Service only when special requirements are involved (such as a need to examine colored plates). The use of special archival quality containers or wrappers for damaged materials is under study.

Routing of Bound Volumes. In August, Preservation and Catalog Maintenance Sections worked out a plan under which no more than a week's supply of volumes to be shelflisted would be delivered by Binding Unit to Catalog Maintenance. Under this plan, excess volumes are sent directly to the stacks. A duplicate copy of the binding instruction slip is sent to Cataloging to serve as a transaction and recall document. One thousand and eight-hundred volumes currently await shelflisting. An undesirable result of this procedure is the amount of time Loan and Stack must spend in recovering and reshelving the volumes called for by Catalog Maintenance. This disadvantage is, however, offset by the reduction of the TSD backlog of newly-bound volumes still charged to Binding, which formerly, when needed, were either considered unavailable or had to be searched. The new procedure reduced unavailables due to materials being charged to Binding from 5,121 in FY 1965 to 2,178 in FY 1966.

HISTORY OF MEDICINE DIVISION

The time of the staff of the History of Medicine Division is devoted largely to the tasks of acquisition, cataloging, reference, reader service, and interlibrary loan. These activities are pursued for the support which they provide, actually or potentially, for study, research, and understanding of the history of the biomedical sciences and health professions. The history of medicine is a relatively small academic discipline, in terms of the number of professorships and candidates for degrees. Its interest, however, extends to a much broader audience, as the growing membership of the American Association for the History of Medicine, for example, testifies. Apparently an increasing number of physicians, scientists, and medical administrators are turning to history for some insight into the background of modern medicine in its broad contexts. The trend is slow, the changes are not spectacular, but a number of events during the past year illustrate the direction of movement. The chief of the Division, Dr. John Blake, was called upon to take part in three informal conferences outside the Library, on library resources for the history of the life sciences, on manuscript sources, and on problems in the history of the behavioral sciences. The Library cooperated with the Josiah Macy, Jr. Foundation in sponsoring a Conference on Education in Medical History. Twenty participants took part in a lively two-day discussion of goals and means, to be published in the coming year. More concretely, the substantially increased circulation statistics provide direct evidence of increasing use of the Library's historical collections.

Hundreds of visitors to the Library were also exposed to the Library's collections and to the history of medicine through exhibits held in the lobby and prepared largely by staff members from HMD. These included exhibits on "Animal Experimentation in Medicine through the 18th Century"; on Conrad Gesner, in honor of the quatercentenary of his death; and on "Medical Symbolism in Books of the Renaissance and Baroque." In each case a catalog describing the books was published and distributed widely. HMD also gave assistance in the preparation of an exhibit and catalog on "Leonardo da Vinci and Medicine" prepared by Dr. Raymond S. Stites of the National Gallery of Art. A number of smaller exhibits, shown in the corridor in HMD, featured recent acquisitions.

Acquisitions. The number of early imprints added to the collections during the past year increased slightly over the previous year, but was still well below the average number during the 1950's. Library-financed acquisitions have been supplemented, however, by an increase in the number of gifts during the past year. We are particularly indebted to Dr. Stanhope Bayne-Jones, whose donations strengthened the Library's holdings in a number of fields. Of particular importance were a collection of works by and about

Jean Paul Marat, French physician and scientist and revolutionary; the first edition of Francesco Redi's Esperienze intorno alla generazione degl' insetti, Florence, 1668, as well as a Latin translation of 1671, and five works of Anthony van Leeuwenhoek. Other welcome gifts of early imprints were received from Col. T. D. Boaz, Jr., Mr. John T. Fishburn, Miss Jeannette M. Francis, and Dr. Joseph I. Waring.

Mention of Redi's work points up the fact that, despite its richness in the historical literature of medicine, the Library still lacks a number of important and well-known works. Others acquired during the year, all works deemed worthy of listing in Garrison and Morton's Medical Bibliography, were the first Greek edition of Dioscorides' De materia medica (Venice, 1499), the second edition of Johann Wier's De praestigiis daemonum (Basel, 1564), Johannes Goedaert's Metamorphosis et historia naturalis insectorum (Middelburg, 1700), and Conrad Gesner's Historiae animalium (Zurich, 1551-87). Other lamentable gaps now filled include the first edition of the Saggi (Florence, 1667) of the Accademia del Cimento, Herman Boerhaave's Index plantarum (Leyden, 1710), and David Ramsay's History of South Carolina (Charleston, 1809), which contains one of the earliest significant American contributions to medical historiography.

Other kinds of material added represent works which individually are not as significant contributions to the biomedical sciences as those mentioned above, but which illustrate popular knowledge or public actions in relation to health and disease. Often these are ephemeral, and surviving copies tend to be extremely rare. One notable example acquired in the past year is a broadside almanac for Nuremberg for 1487, which includes extensive directions for bloodletting. As Sir William Osler has noted, these bleeding calendars "are among the rarest items in early printing"; according to Goff's Census, there is no other copy of this one in the United States. Of a similar ephemeral nature, and almost equally rare, were a 1636 broadside proclamation of King Charles I promulgating orders against the plague, two 16th century plague tracts, one by Johann Klainmüller, the other by Andreas Ellinger, and an anonymous regimen for midwives, Schwangerer, kreistender, wochnerin unnd seugender Regiment (Halle, 1591).

Altogether 245 editions were added to the early imprint collections: 2 incunabula, 26 16th century, 64 17th century, 145 18th century, and 8 Americana. Perhaps half are medical in a narrow sense; the others reflect the interdisciplinary nature of medicine in the broad sense, and of the materials needed for research in the history of the biomedical sciences and health professions: botany, chemistry, natural philosophy; dentistry, pharmacy, and veterinary medicine.

Cataloging. The most important achievement of the cataloging program during the year was completion of the manuscript for the 16th century catalog. It is now in press, with publication scheduled for early 1967.

Prints and Photographs. The Library's pictorial resources were significantly enriched this year, particularly with the acquisition of a collection of 264 prints, drawings, and other items relating to dentistry. The collection included etchings, engravings, woodcuts, and lithographs from the 16th through the 19th century, among them being three Goyas, a Hogarth, and about 25 caricatures. Other accomplishments include the cataloging of a substantial backlog of pictures and inauguration of a program for improved mounting and preservation of fine prints.

Early Manuscripts. Substantial accessions were made to the microfilm holdings of early manuscripts. Nine reels containing 48 Arabic manuscripts were obtained from Damascus. These were selected and acquired through the cooperation of Dr. Sami Hamarneh, a specialist in medieval Arabic medical history at the Smithsonian Institution. Substantial collections of Latin manuscripts, each containing at least one Galenic text, were acquired on microfilm from the Bibliotheque Nationale and the Biblioteca Medicea Laurenziana (Florence), and orders have been placed for several others.

Analysis of acquisitions to date by Mr. Richard J. Durling, Curator of Early Western Manuscripts, has shown the catalog of Hermann Diels (1905-07) to be in some respects unreliable and has substantiated the need for a new account of the Latin transmission of Galenic and pseudo-Galenic writings. Mr. Durling's researches in this area will eventually be incorporated in the Galen article which he is preparing for the Catalogus Translationum et Commentariorum.

Modern Manuscripts. Continued progress was made during the year in cataloging the backlog of modern manuscript materials in the Library's existing collections. During the year 117 manuscript groups were processed, ranging in size from a single volume or manuscript box to one collection of 54 manuscript boxes. Fourteen groups were acquired during the year, totalling approximately 23,250 pieces. Among these were a collection of papers from Dr. William Bean; a collection from Mrs. James D. Doull, including several letters of William Budd; and significant additions to the collections of Henry Leber Coit papers, from Miss Eleanor G. Coit and Miss Edith N. Coit, and to the Chauncey Leake papers. Donors of other collections, to whom the Library's thanks are also acknowledged, include Theodore Wiprud, Mrs. Ernest Lyman Scott, and Miss Anna E. Muddiman.

During the year the Library also initiated an oral history program, through a contract with a historian - interviewer, using Extramural Program funds. At the end of the year, the first interview was in progress. This will lead to the acquisition of additional manuscript material as well as tape-recorded and transcribed interviews, enriching the Library's resources for research in recent medical history.

Bibliography. The first annual bibliography of the history of medicine was prepared during the year and ready to go to press as the year ended. The bibliography is intended to provide an annual selective guide to the literature of medical history, with five-year cumulations to enhance its permanent reference value. Citations have been selected from MEDLARS and other sources, including literature in other academic disciplines not ordinarily received in NLM. It is arranged in such a fashion as to give users biographical, topical, chronological, geographical, and author approaches to the literature.

A P P E N D I C E S

ACQUISITION ACTIVITIES

	1964	1965	1966
SEARCHING			
Prospects considered for acquisition, not in Library	29,494	27,151	32,919
Prospects considered for acquisition, Library has	15,468	21,470	13,087
TOTAL	44,962	48,621	46,006
ORDERS PLACED	14,555	14,803	14,755
SERIAL RECORD			
New titles added	1,511	1,299	1,925
Titles currently received (as of end of year)	15,358*	16,557*	18,482*
PUBLICATIONS ADDED			
Serial Pieces	71,323	77,406	80,611
Other	19,782	13,405	17,839
TOTAL PUBLICATIONS ADDED	91,105	90,811	98,450
OBLIGATIONS FOR PUBLICATIONS	$108,000	$124,114	$161,286
(Included for rare books)	14,007	12,234	26,319

* At least one issue received since January 1959.

NATIONAL LIBRARY OF MEDICINE

GROWTH OF COLLECTIONS

FISCAL YEAR 1965/1966

	CURRENT YEAR			COLLECTION TOTALS	
	Added	Withdrawn	Net Gain	30 June 1965	30 June 1966
BOOK MATERIAL					
1. Bound Monographs					
a. HMD	265	47	218	35,409	35,627
b. 1801-1913	111	17	94	88,443	88,537
c. 1914-	8,623	32	8,591	182,990	191,581
Subtotal (1)	8,999	96	8,903	306,842	315,745
2. Bound Serials	12,256	49	12,207	298,859	311,066
Total Bound Volumes (1 + 2)	21,255	145	21,110	605,701	626,811
3. Theses (including unsearched theses)	5,368	0	5,368	285,151	290,519
4. Pamphlet volumes	26	0	26	167,576	167,602
Subtotal (3 + 4)	5,394	0	5,397	452,727	458,121
TOTAL BOOK MATERIAL	26,649	145	26,504	1,058,428	1,084,932
NON-BOOK MATERIAL					
1. Microfilms	443	0	443	4,150	4,593
2. Portraits and Pictures	1,376	1	1,375	59,241	60,616
TOTAL NON-BOOK MATERIAL	1,819	1	1,818	63,391	65,209
BOUND VOLUME EQUIVALENTS				15,000	15,000
GRAND TOTAL	28,468	146	28,322	1,136,819	1,165,141

CATALOGING STATISTICS

	1964	1965	1966
COMPLETED CATALOGING			
New Titles	11,326	10,174	10,063
Pecataloged Titles	2,831	4,742	2,160
TOTAL	14,157	14,916	12,223
Volumes Reclassified and/or Transferred	873	2,125	1,959
Catalog Cards Filed	102,871	163,203	210,820
Volumes Shelflisted	99,841	53,697	36,230
Volumes Withdrawn	360	387	95

NATIONAL LIBRARY OF MEDICINE CATALOG

	(ANNUAL) 1963	1964	1965*	Cumulation 1960-1965
Main entries	11,592	12,832	16,523	93,964
Added Entries	4,566	6,112	7,293	32,641
Name cross-references	2,856	4,212	3,103	22,273

* The 1965 entries were not published separately, but were included in the 1960-1965 cumulated edition.

BIBLIOGRAPHIC SERVICES DIVISION
FY 1966

	FY 1964	FY 1965	FY 1966
Articles Indexed	144,057	151,635	164,545
Backlog as of June 30	11,860	22,870	40,916 1/
Articles Revised	63,598	98,777	108,681
Percent of All Articles	44.1	65.1	66.0
Journal Issues Received for Indexing	14,486	15,577	17,390
Journal Titles Indexed in Index Medicus	2,299	2,441	2,436
Cyrillic Bibliography Project	20,004	18,321	15,526
MEDLARS Searches Performed	536	1,623	3,035
Recurring Bibliographies	3	6	9

1/ This figure reflects approximately a 10 percent increase due to a new method of estimating backlogs during FY 1966.

REFERENCE SERVICES

	1964	1965	1966
Requests by Telephone	9,866	9,810	9,971
Government	(5,641)	(5,621)	(5,381)
Non-Government	(4,225)	(4,189)	(4,590)
Requests by Mail	1,592	2,077	1,489
Government	(204)	(274)	(192)
Non-Government	(1,388)	(1,803)	(1,297)
Readers Assisted	8,696	9,044	10,411
Government	(3,364)	(3,650)	(3,934)
Non-Government	(5,332)	(5,394)	(6,477)
Total	20,154	20,931	21,871
Government	(9,209)	(9,545)	(9,507)
Non-Government	(10,945)	(11,386)	(12,364)
Readers counted	26,133	26,779	27,418

BINDING STATISTICS

	1964	1965	1966
Volumes sent to binder	17,340	17,800	18,775
Volumes returned from binder and processed	16,933	18,328	17,773
New volumes	(12,933)	(14,480)	(15,574)
Rebinds	(4,000)	(3,848)	(2,199)
Volumes bound at NLM	2,807	3,425	3,529
Volumes repaired at NLM	2,513	4,138	4,373
Volumes and pieces lettered	66,546	41,037	28,413
Pieces mounted	199	82	145

CIRCULATION STATISTICS 1966

	1964	1965	1966
Requests received	243,464	263,464	278,340
Requests filled	213,711	229,297	243,424
Requests unfilled	29,753	34,167	34,916
Rejected	(5,973)	(1,218)	(8,652)
N.A.	(23,780)	(32,949)	(26,264)
Percentage of requests filled	87.7%	87.0%	87.4%

ITEMS USED BY MAJOR CATEGORY

Reader's requests	83,156	80,739	91,537
Interlibrary Loans	130,555	148,558	151,787
Photocopy	(124,569)	(142,452)	(145,076)
Original	(5,986)	(6,106)	(6,711)
Government	(3,164)	(3,350)	(3,170)
Non-Government	(2,822)	(2,756)	(3,541)

UNAVAILABLES

	By percentage of total unavailables			By percentage of total requests accepted		
	1964	1965	1966	1964	1965	1966
Already on loan	9.6	8.4	10.5	0.9	1.1	1.0
Not in Collection	32.2	29.8	34.4	3.2	3.7	3.4
At bindery	21.0	20.0	12.4	2.2	2.4	1.2
Missing	13.4	22.8	3.4	1.3	2.8	0.3
Does not circulate	9.4	5.1	5.9	0.9	0.6	0.5
Not identified	3.5	4.4	6.2	0.4	0.6	0.6
In process	10.9	9.5	27.2	1.1	1.2	2.7
	100.0	100.0	100.0	10.0	12.4	9.7

PHOTOGRAPHIC SERVICES

TABLE I - EXTERNAL ORDERS

	1964	1965	1966
EXTERNAL ORDERS COMPLETED	126,327	143,374	145,295
By type of order:			
Interlibrary loan	(124,569)	(142,452)	(145,076)
Coupon, paid, special	(1,758)	(922)	(219)
By type of service:			
Microfilm	(23)	(33)	(27)
CopyFlo	(124,121)	(140,093)	(141,575)
Photostat	(567)	(722)	(278)
Xerox 914 Copier	(1,184)	(1,969)	(2,950)
Photoprints	(289)	(423)	(339)
Photographs and slides	(143)	(134)	(126)
PAGES DUPLICATED FOR ORDERS			
Microfilm:	1,940,104	2,094,823	2,074,353
For CopyFlo orders	(1,934,490)	(2,084,074)	(2,069,165)
For microfilm orders	(5,614)	(10,749)	(5,188)
CopyFlo (from film file)	9,451	13,948	7,848
Photostat	3,282	3,250	1,300
Xerox 914 Copier	11,257	17,919	26,201
Photoprints	2,415	3,073	3,481
Photographs and slides	604	933	765
Total	1,967,113	2,133,946	2,113,948
CARDS			
Microfilm	2,805	0	0
CopyFlo	2,805	0	0
Total	5,610	0	0

PHOTOGRAPHIC SERVICES

TABLE II - INTERNAL ORDERS

	1964	1965	1966
Microfilm pages	1,297,876	729,235	1,302,092
For film file	(228,321)	(212,498)	(190,378)
For poor paper program	(1,062,433)	(480,011)	(1,102,837)
For interoffice orders	(7,122)	(36,726)	(8,877)
Paper reproduction pages	107,376	258,212	258,097
Photostat	(476)	(696)	(1,071)
CopyFlo	(20,782)	(51,542)	(37,569)
Photoprints	(58)	(8)	(8)
Xerox 914 Copier	(86,060)	(205,966)	(219,449)
Photographs and slides	1,551	2,471	3,555
Cards - Microfilm	144,825	137,236	222,090
- CopyFlo	146,080	125,621	222,203

TABLE III - TOTAL PRODUCTION

	1964	1965	1966
Microfilm	3,237,980	2,824,058	3,376,445
CopyFlo pages	1,964,723	2,149,564	2,114,582
Photostat pages	3,758	3,946	2,371
Xerox 914 Copier	97,317	223,885	245,650
Photoprints	2,473	3,081	3,489
Photographs and slides	2,155	3,404	4,320
Cards - Microfilm	147,630	137,236	222,090
- CopyFlo	148,885	125,621	222,203

TABLE IV - ORDERS COMPLETED AS INTERLIBRARY LOANS

	1966		
	GOVERNMENT	NON-GOVERNMENT	TOTAL
Metropolitan Washington	19,795	6,755	26,550
Outside Washington (U.S.A.)	23,774	68,332	92,106
Overseas	5,868	20,552	26,420
Total	49,437	95,639	145,076

HISTORY OF MEDICINE DIVISION

ACQUISITIONS	1964	1965	1966
Editions searched	4,565	2,222	2,041
Editions ordered	553	430	314
Editions added to collection	452	226	245
Manuscript items	*	*	23,257
CATALOGING			
Editions cataloged	2,305	2,149	772
Card mats typed	3,111	4,680	1,781
Catalog cards filed	15,683	53,746	26,001
REFERENCE			
Reference requests	*	*	847
CIRCULATION			
Readers	342	382	852
Volumes charged	1,111	1,103	2,588
Interlibrary loan and photoduplication orders	484	497	823
Original material	(217)	(227)	(109)
Photocopies	(267)	(270)	(714)
PAGES FILMED			
For special orders	4,041	9,609	2,765
For security / loan	198,729	205,511	168,499
For acquisition	0	0	0
	202,770	215,120	171,264
PRINTS AND PHOTOGRAPHS			
Items added to collection	593	298	1,433
Pictures supplied	980	1,090	597
Reference requests	281	196	241

* Not previously counted

NLM LITERATURE SEARCHES

These bibliographies on selected subjects are the product of literature searches requested by physicians, scientists, and other health professionals. They have been chosen as being of interest to a wide audience. The literature searches are announced through monthly notices in the following periodicals: Journal of the American Medical Association (Book Forum), Drug Research Reports, and Public Health Reports. Single copies of the listed bibliographies may be ordered by title and number from NLM.

RECURRING DEMAND SEARCHES

as of June 30, 1966

Title	Issues Released	Requester
Smoking, Tobacco, Nicotine	12	Division of Chronic Diseases, PHS
Sudden Death	12	National Institute of Child Health and Human Development, NIH
Venereal Diseases	12	Communicable Disease Center, Atlanta, Georgia
Gastroenterology	12	National Institute of Arthritis and Metabolic Diseases, NIH
Toxicology Bibliography	10	Food and Drug Administration, Washington, D.C.
Toxicology Bibliography (Temporarily discontinued 6/17/66)	8	American Medical Association, Chicago, Illinois
Primates, Apes, and Monkeys	12	University of Washington Primate Information Center, Seattle, Washington
Dental Literature (3 parts)	4	National Library of Medicine, Dentistry
Schizophrenia	12	Lafayette Clinic, Detroit, Michigan
Programmed Instruction	1	Lafayette Clinic, Detroit, Michigan

History of Medicine Semi-annual	2	History of Medicine, National Library of Medicine
Monthly	12	(")
Vital and Health Statistics	16	National Center for Health Statistics, PHS
Malaria	6	Gorgas Memorial Laboratory, Balboa Heights, Canal Zone, Panama
Epilepsy and Anti-convulsants	4	Michigan Epilepsy Center and Association, Detroit, Michigan
All Citations Written in Chinese	6	
Medical Education Bibliography	2	Pan American Health Organization, Washington, D.C.
Germ Free Life - Life Islands	2	National Institute of Allergy and Infectious Diseases, NIH
Resuscitation	5	Department of Agriculture, Beltsville, Maryland
Hospital Acquired Infections	3	Office of Science and Technology, Washington, D.C.
Specified Categories (Temporarily discontinued 5/26/66)	11	U.S. Biological Center, Fort Detrick, Maryland

PUBLICATIONS

As a leader in modern biomedical communications, the Library contributes to the advance of the health sciences through a broad publications program.

NLM's bibliographies, indexes, catalogs, and other guides to medical literature can be purchased from the Superintendent of Documents, U. S. Government Printing Office, Washington, D.C. 20402.

Index Medicus, a monthly bibliographic listing of references to current articles from approximately 2,400 of the world's biomedical journals. Each issue contains subject and name sections and a separate Bibliography of Medical Reviews. Price: $40 annual subscription ($49 foreign); single issues, $3.75.

Cumulated Index Medicus, a cumulation in one author volume and three subject volumes of the articles cited in twelve monthly issues of Index Medicus. Volume 6, 1965, cites 171,437 articles. Price: $40 per set ($50 foreign).

Medical Subject Headings, published as Part 2 of the January Index Medicus. Subject headings are arranged alphabetically with cross references and in categorized lists. Price: $2.50.

List of Journals Indexed in Index Medicus, 1966, contains four separate listings of journals indexed for Index Medicus in 1965: title, abbreviation, subject, geographic location. Price: $0.75.

Bibliography of Medical Reviews, annual cumulation of current review articles cited in monthly Index Medicus, listed by subject. Price for Volume 11, 1966: $1.25 (volumes 1-10 also available at varying prices).

Bibliography of Medical Translations, published semimonthly as a guide to the location of available translations from the foreign language biomedical literature. Price: $4.50 annual subscription ($5.75 foreign); annual cumulative index, $0.50.

NLM Current Catalog, began publication in January 1966 (supersedes National Library of Medicine Catalog). Issued biweekly, with quarterly and annual cumulations. Biweekly issues contain an author and title listing of publications cataloged during the preceding two weeks and also provide a subject listing of publications cataloged. Price: $15 annual subscription ($20 foreign) includes biweeklies, quarterlies, and hard-bound annual. (Annual cumulation available separately: $4.50).

National Library of Medicine Catalog, an author and subject index to books and serials cataloged by the Library from 1950 through 1965. Further information on this series of three cumulations (1950-54, 1955-59, 1960-65) is available from the Library.

STAFF PUBLICATIONS

Adams, Scott. The National Library of Medicine's role in biomedical Communications. BioScience 15: 585-8, September 1965.

-----. Trends in bibliographic organization in the biomedical sciences. Wilson Libr. Bull. 40:714-8, April 1966.

Austin, C. J. Dissemination of information and problems of graphic presentation (a talk presented at the 31st Meeting and Congress of the International Federation for Documentation, October 13, 1965, Washington, D. C. which is to be published).

-----. Experience with the GRACE system. Automation and Electronics in Publishing, edited by Hattery & Bush, Spartan Books, Inc., Washington, D. C., December 1965, pp. 61-70.

Blake, John B. The library and dental history. Alabama J. Med. Sci. 3: 91-5, 1966.

Clements, Raymond D. Avicenna, the prince of physicians. Minnesota Med. 48: 1567-8, 1965; 187-92, 1966.

-----. A sixteenth century psychologist on the immortality of the soul: Juan Luis Vives. Bibliotheque d'humanisnme et renaissance: travaux et documents 28: 78-88, 1966.

Cummings, Martin M. The National Library of Medicine and the practitioner. Postgraduate Med. 39: 327-8.

Durling, Richard J. Conrad Gesner's Liber Amicorum, 1555-1565. Gesnerus 22: 134-59, 1965.

Durling, Richard J. and Durling, Sheila M. An Ulm unicum of 1501 in the National Library of Medicine. Library, 5th ser., 20: 55-57, 1965. plates.

Elwin, Carl-Eric. The use of MEDLARS by the pharmacologist: some aspects of terminologic problems. Pharmacologist 8, summer 1966.

Kenton, Charlotte. The recurring bibliographies program of MEDLARS. Bull. Med. Lib. Assn. 54: April 1966.

Lancaster, F.W. Evaluation of systems by comparison testing. College & Research Libraries, pp. 219-21, May 1966.

Redmer, Paul C. Publication by GRACE. Methods of Information in Medicine. 4: 136-40, September 1965.

Sewell, Winifred. The needs of industry for library services beyond that expected of its own special libraries and resources available to them. Libr. Trends 14: 226-35, January 1966.

U. S. National Library of Medicine. Animal experimentation in medicine through the 18th century. An exhibition (compiled by Ellen B. Wells), Bethesda, Maryland (1965), 17 p.

-----. Conrad Gesner, a quartercentenary exhibit (compiled by Richard J. Durling), Bethesda, Maryland (1965), 20 p. illus.

-----. Medical symbolism in books of the renaissance and baroque, An exhibit (compiled by Peter Krivatsy), Bethesda, Maryland (1966), 22 p. illus.

Wells, Ellen B. 't' Gevoel: a toothpulling scene. Visual Med. 1(1): 51, March 1966.

APPENDIX XIII

Coverage and Subject Matter Distribution of Abstracts of Soviet and Japanese Periodical Literature Prepared by Abstract Journals

	Approx. No. of Journals Screened	No. of Abstracts Contracted for in 1966	Biomedical Areas Most Heavily Represented According to Latest Available Data
Soviet Literature			
Biological Abstracts	120*	10,000	Vertebrate zoology, radiation biology, neoplasms, pharmacology
Excerpta Medica	140*	3,000	Surgery, neurology-psychiatry, microbiology-immunology, physiology, chest diseases
Japanese Literature			
Excerpta Medica	600	3,350	Microbiology-immunology, surgery, biochemistry, public health, internal medicine

*Figures do not include biomedical journals unavailable outside of the USSR. Coverage of such periodicals is obtained indirectly via abstracts produced and/or distributed by VINITI, the Soviet central scientific information institute.

APPENDIX XIV

NATIONAL LIBRARY OF MEDICINE
EXTRAMURAL PROGRAMS
TRAINING GRANTS

LM Grant Number	Principal Investigator & Institution	Project Title	Amount 1966
000101-01A1	Shilling, Charles W. George Washington Univ. Washington, D. C.	Biomedical Communication	$32,620
000102-01	Lasslo, Andrew University of Tennessee Memphis, Tennessee	Post-Graduate Training of Science Librarians	51,154
000103-07	Stevenson, Lloyd G. Yale University New Haven, Connecticut	History of Medicine	40,340
000104-01	Swanson, Don R. University of Chicago Chicago, Illinois	Medical Librarianship	87,590
000105-07	Temkin, Oswei Johns Hopkins University Baltimore, Maryland	History of Medicine	31,620
000106-01	Brodman, Estelle Washington Univ. School of Medicine St. Louis, Missouri	Biomedical Librarianship	38,419

LM Grant Number	Principal Investigator & Institution	Project Title	Amount 1966
000109-01	Simonton, Wesley University of Minnesota Minneapolis, Minnesota	Biomedical Librarianship	$ 79,116
000111-06	Darling, Louise University of California Los Angeles, California	Biomedical Librarianship and Information Service	40,631
000119-01	Hayes, Robert M. University of California Los Angeles, California	Information Science	29,700
		TOTAL	$431,190

APPENDIX XV

NATIONAL LIBRARY OF MEDICINE
EXTRAMURAL PROGRAMS
RESEARCH GRANTS

LM Grant Number	Principal Investigator & Institution	Project Title	Amount 1966
000003-03	Tremaine, Marie Arctic Institute of North America Washington, D. C.	"Abstracting Medical literature for arctic bibliography"	$25,773
000011-01	Siegel, Rudolph E. Research Foundation of State Univ. of New York Albany, New York	"Galens physiology and medical experiences"	19,110
000013-02	Rosenberg, Charles E. University of Pennsylvania Philadelphia, Penna.	"The germ theory comes to America, 1870-1900"	5,541
000014-01	Lutzker, Edythe INDIVIDUAL New York, New York	"Biography of Dr. Edith Pechey-Phipson 1845-1908"	7,417
000016-01	Weiner, Dora B. Columbia University New York, New York	"A social history of French medicine 1789-1815"	11,782

LM Grant Number	Principal Investigator & Institution	Project Title	Amount 1966
000018-02	Hammond, E. Ashby University of Florida Gainesville, Florida	"The medical profession in medieval England"	$ 8,720
000019-01	Forbes, Thomas R. Yale University School of Medicine New Haven, Connecticut	"Bestiaries and traditional medicine"	3,487
000020-01	Pings, Vern M. Wayne State University Detroit, Michigan	"Relationships of biomedical information services"	34,358
000036-01	Swanson, Don R. University of Chicago Chicago, Illinois	"Experimental dissemination of biomedical literature"	164,863
000038-03	Beck, Ann F. University of Hartford West Hartford, Connecticut	"A history of the British medical administration of East Africa, 1900-1950"	4,425
000042-01	Felter, Jacqueline W. Medical Library Ctr. of N.Y. New York, New York	"Union catalog of medical periodicals"	57,591**

**Direct costs only

LM Grant Number	Principal Investigator & Institution	Project Title	Amount 1966
000046-04	Debus, Allen G. University of Chicago Chicago, Illinois	"The evolution of chemistry in the service of medicine"	$ 17,842
000048-01	Henderson, Laurence E. Loyola University Chicago, Illinois	"Translation of G.E. Stahl, Theoria Medica Vera, 1708"	15,693**
000053-01	Divett, Robert T. University of New Mexico Albuquerque, New Mexico	"Total system computer program for medical libraries"	61,323
000061-01	Miller, Genevieve Cleveland Medical Library Association Cleveland, Ohio	"Teaching of medical history in the U.S. and Canada"	17,660**
000062-01	Langley, Harold D. Catholic University of America Washington, D. C.	"The evolution of a professional medical service in the U.S. Navy 1798-1870"	1,259

**Direct costs only

LM Grant Number	Principal Investigator & Institution	Project Title	Amount 1966
000063-01	Rather, Lelland J. Stanford University Stanford, California	"The Leibniz-Stahl controversy in the negotium otiosum"	$ 2,176
000064-01	Berman, Alex University of Texas Austin, Texas	"Studies in 19th century French pharmacy"	18,738
000065-01	Onley, John C. System Development Corporation Santa Monica, California	"An investigation of English discourse structure"	38,557**
000068-01	Paul, John R. Yale University School of Medicine New Haven, Connecticut	"Writing of history of poliomyelitis"	16,000
000071-01	Schultes, Richard E. Harvard University Cambridge, Massachusetts	"Poisonous plants of the new world tropics"	15,420**
000072-01	Halstead, Bruce W. World Life Research Institute Colton, California	"Preparation of a monograph of poisonous plants of the world"	87,835**

**Direct costs only

LM Grant Number	Principal Investigator & Institution	Project Title	Amount 1966
000074-01	Straight, William M. University of Miami Coral Gables, Florida	"History of medicine in Florida"	$ 6,968
000075-01	Stieb, Ernst W. University of Wisconsin Madison, Wisconsin	"The American college of apothecaries, 1940-1965"	8,936
000076-02	Habel, Robert E. New York State Veterinary College Ithaca, New York	"Veterinary anatomical nomenclature"	3,328**
000087-01	Collins, Donald L. American Mosquito Control Association Selma, California	"Publication of bibliography of medical entomology"	2,000**
000088-01	Levine, Norman D. University of Illinois Urbana, Illinois	"Publication of translated Russian epidemiology book"	14,000**

**Direct costs only

LM Grant Number	Principal Investigator & Institution	Project Title	Amount 1966
000092-01	Fremont-Smith, Frank New York Academy of Sciences New York, New York	"Interdisciplinary conferences on drug information"	$ 29,253**
000094-01	Artandi, Susan Rutgers-The State Univ. New Brunswick, New Jersey	"Automatic indexing of drugs information"	37,533**
000097-01	Cox, Gerald J. University of Pittsburgh	"Survey of the literature of dental caries, 1961-1963"	15,720
000098-01	Rubenstein, Albert H. Northwestern University Evanston, Illinois	"Experiments on information environments of researchers"	49,548
			$802,856 (31)

**Direct costs only

APPENDIX XVI

NATIONAL LIBRARY OF MEDICINE
EXTRAMURAL PROGRAMS
CONTRACTS AND AGENCY REIMBURSEMENTS
FY 1966

I. CONTRACTS

Contract Number	Project Director and Contractor	Project Title	Amount
PH 43-66-478	Mr. Robert Gulick Biological Abstracts, Inc. Philadelphia, Pa.	Prepare English language abstracts from Soviet biomedical literature.	$ 52,500
PH 43-63-613	Dr. Raymund Zwemer Federation of American Societies for Experimental Biology Bethesda, Maryland	Selection, translation, publication and dissemination of Soviet and other foreign research information.	150,155
PH 43-66-474	Dr. Merlin DuVal Association of American Medical Colleges Evanston, Illinois	Develop guidelines for construction of medical library facilities	60,798
PH 43-66-504	Mr. Peter A. Warren Excerpta Medica Foundation New York, New York	Prepare English language abstracts from Japanese and Russian biomedical literature.	89,738

Contract Number	Project Director and Contractor	Project Title	Amount
PH 43-65-631 Suppl. #1	Mr. Frederick G. Kilgour Yale University New Haven, Connecticut	Computer analysis of biomedical book and journal use.	$ 2,639
PH 43-65-1064*	Dr. Kenneth Warren Western Reserve Univ. Cleveland, Ohio	Print, publish, and distribute a two-volume Bibliography of Schistosomiasis, 1852-1962.	25,000*
PH 43-66-540	Dr. Richard H. Orr Institute for Advancement of Medical Communications Philadelphia, Pa.	Develop and test methods for evaluating biomedical libraries.	62,858
PH 43-66-1151	Dr. Henry S.M. Uhl Albany Medical College Albany, New York	Prepare self-instruction educational materials for practicing physicians.	110,903

*This contract will be amended since a part of the work will be done under a publication grant.

Contract Number	Project Director and Contractor	Project Title	Amount
PH 43-66-507	Dr. Robert B. Livingston University of California La Jolla, California	Prepare a comprehensive annotated table of contents for a "total text" in neurosciences.	$ 39,653
PH 43-66-1289 and P.O.D. 118800-6	Dr. Harlan B. Philips Huntington, Long Island, New York	Oral history projects	11,830
			$ 606,074

Total Contracts (10)

II. Reimbursements to other Government Agencies for Program Projects

Agency	Project	Amount
National Science Foundation	EDUCOM Seminar on information networks among colleges and universities.	$ 25,000
Clearinghouse for Federal Scientific and Technical Information	Preparation of camera copy of Bibliography of Medical Translations.	34,700
Joint Publications Research Service (JPRS)	Translations	1,176
Government Printing Office	Printing Bibliography of Medical Translations	10,356
	Printing Bibliography of Nucleic Acids, Vol. II, part 2.	3,000
	Total Reimbursements	$ 74,232

APPENDIX XVII

NATIONAL LIBRARY OF MEDICINE
EXTRAMURAL PROGRAMS
RESOURCE GRANTS

LM Grant Number	Principal Investigator & Institution	Project Title	Amount 1966
000104-01	Sodeman, William A. Jefferson Medical College Philadelphia, Penna.	Medical Library Resource	$18,250
000107-01	Tesluk, Henry Sacramento County Hospital Sacramento, California	Medical Library Resource	2,277
000112-01	Reiman, Philip K. Maine Medical Center Portland, Maine	Medical Library Resource	3,471
		Total	$23,998

PERSONNEL STATISTICS

TABLE I - PERSONNEL ON DUTY

	FY 1964	FY 1965	FY 1966
Personnel authorized	268	291	352
Personnel on duty (June 30)	259	269	320
Average number of persons employed	247	269	294
PERSONNEL ON DUTY			
Office of the Director	41	40	51
Extramural Programs	9	13	21
Intramural Programs	209	216	248
Office of the Associate Director	-	-	(4)
Medical Subject Headings	-	-	(8)
Drug Literature Program	-	-	(11)
Technical Services Division	(60)	(59)	(57)
Bibliographic Services Div.	(29)	(32)	(32)
Information Systems Division	(37)	(41)	(50)
Reference Services Division	(70)	(69)	(68)
History of Medicine Division	(13)	(15)	(18)
	259	269	320

TABLE II - PERSONNEL ACTIONS

	FY 1964	FY 1965	FY 1966
Accessions	65	74	123
Losses	48	62	72
Conversion to Career-Conditional or Career	17	17	37
Promotions	65	70	121
Reassignments	57	31	28
Demotions	0	0	0
Pay Adjustments	7	39	5

FINANCIAL STATISTICS: OBLIGATIONS

FY 1966

Table I. Summary of Program

	1966 Actual
Medical Library Assistance:	
Research and development grants	605,940
Fellowship grants	33,504
Training grants	431,665
Construction grants	...
Publications and library support grants	223,998
Regional medical library grants	...
Subtotal, grants	1,295,107
Direct Operations:	
Intramural library operations	4,466,511
Extramural contracts	604,244
Review and approval of grants and contracts	123,266
Subtotal, direct operations	5,194,021
Total, National Library of Medicine	6,489,128

Table II. Obligation by Object

	1965 Actual	1966 Actual
11 - Personnel compensation	1,980,211	2,289,522
12 - Personnel benefits	151,656	174,795
21 - Travel and transportation of persons	35,656	58,078
22 - Transportation of things	3,142	3,835
23 - Rent, communications, and utilities	114,820	124,248
24 - Printing and reproduction	163,835	242,643
25 - Other services	1,139,182 1/	90,064
Project contracts	...	1,242,399
Services of other agencies	...	189,366
Payment to National Institutes of Health Management Fund	...	418,406
26 - Supplies and materials	87,253	103,547
31 - Equipment	164,803	257,118
(Literature)	(125,244)	(166,862)
Grants, subsidies, and contributions	119,897	1,295,107
Appropriation transfer to LC	8,000	...
Total	3,968,455	6,489,128

1/ Project contracts, services of other agencies, payment to NIH are included in this total.

FINANCIAL STATISTICS: APPROPRIATIONS

FY 1966

Regular 1966 Appropriation, NLM	$5,510,000
1966 Supplemental Appropriation, NLM	4,175,000
	$9,685,000
Transferred to the Office of the Surgeon General, Salaries and Expenses	-1,000
Reimbursement for goods and services rendered to other federal agencies	+25,000
	$9,709,000
Appropriation: Buildings and Facilities (Repairs and Improvements)	$106,000
Appropriation: Scientific Activities Overseas	
India	$5,801
Israel	16,280
Poland	394,200
Yugoslavia	85,100
	$501,381
Allotment from Agency for International Development	$35,000

AID HOST COUNTRIES

Far East	Latin America	Near East	Africa
Korea	Bolivia	India	Cameroon
Laos	Brazil	Iran	Chad
Philippines	Chile	Jordan	Ethiopia
Thailand	Colombia	Nepal	Liberia
Viet Nam	Costa Rica	Pakistan	Nigeria
	Equador	Turkey	Tunisia
	El Salvador		Upper Volta
	Guatemala		Sudan
	Mexico		Senegal
	Nicaragua		Uganda
	Panama		
	Paraguay		
	Peru		
	Surinam		
	Venezuela		

ADVISORY REPORT ON POLICY FROM THE BOARD OF REGENTS
OF THE NATIONAL LIBRARY OF MEDICINE
TO THE SURGEON GENERAL OF THE
UNITED STATES PUBLIC HEALTH SERVICE

GENERAL POLICIES

1. The National Library of Medicine should be responsible for collecting, organizing, processing and distributing recorded information relevant to human health, serving as the primary national resource for these functions.

2. The National Library of Medicine should be the central respository and the coordinating agent for the multiple specialized information centers designed to meet categorical information needs related to human health.

3. The National Library of Medicine should be the heart of a national biomedical information system which is designed to function as a component of a future national science information network.

4. The National Library of Medicine should be responsible for the research, organization, development and coordination necessary to the evolution of a more effective decentralized national system for the dissemination of information in medicine and related fields.

These general policies are consistent with the characteristics of the National Library of Medicine:

1. The greatest repository of medically related information in the world is contained in the National Library of Medicine and its capacity to disseminate this information is unequalled.

2. The National Library of Medicine functions as the capstone of our present system of medical libraries and has well established interlibrary relationships for exchange and sharing of its collections.

3. The National Library of Medicine has been in the forefront internationally in placing into operation advanced systems of information processing suited to serve students, investigators and practitioners in the broad fields of knowledge related to human health.

4. The mission orientation of improving human health gives unique quality to the National Library of Medicine, setting it apart from information systems concerned entirely with physical events or with general knowledge.

5. The rising expectations of the American people for greater access to comprehensive health service gives pressing urgency to the need for the National Library of Medicine to respond more effectively to the rapidly increasing demands placed upon it by both public and governmental agencies.

OPERATING POLICY

There are six areas of operating policy, within the context of general policy, which deserve specific statement:

I. Service

II. Technical Standards

III. Research and Development

IV. Education and Training for Library Personnel

V. Library Resources for Education in the Health Professions

VI. Medical Information Network of a National Science Information System

I. Service

The National Library of Medicine has functioned by giving its services in the public interest to governmental and non-profit agencies, organizations and institutions or alternatively upon a loan, exchange or charge basis. Medical libraries throughout the country, historically structured in the "free public library" pattern, because of increased demands and under-support in recent years, have been compelled to make charges for library loan and reference services. Assuming no legal impediments, the following service policies should be given effect:

1. Access to the Information in the National Library of Medicine should be available to all qualified users without charge as a public service.

2. The National Library of Medicine's services should be viewed as part of the total responsibility of the Federal Government for the health of the people.

3. All cooperative service programs between the National Library of Medicine and other agencies, institutions or organizations should reflect these service policies. As such a national resource, it can and should play a major role in supporting and improving both basic and continuing education of the health professions by providing information and communication resources essential to the educational process.

II. Technical Standards

Multiple subsystems will compose the ultimate national science information system. The concern with human health identifies the national subsystem which should have the National Library of Medicine as its center. Technical standards must give primary attention to the real functions of the subsystem while assuring that it will have effective linkages to and be an integral part of a national science information network. The following policies for establishment of technical standards should be given effect:

1. The National Library of Medicine should be the representative and agent for the biomedical information system in all efforts to standardize communication modalities on a national or international scale.

2. The National Library of Medicine, with appropriate technical advice, should have the responsibility for determining the communication modalities and technologies most suitable for the subsystem serving students, researchers and practitioners concerned with human health.

3. The National Library of Medicine should have the responsibility for assuring that to the fullest extent consistent with serving the needs of the health related workers, its information system will be compatible and/or convertible with the modalities and technologies selected for federally supported information subsystems in other fields of science and library practice.

III. Research and Development

The National Library of Medicine has demonstrated its effective concern with introducing new and improved means of information processing. Current demands by users of biomedical information are heavily moderated by their preconceptions of the difficulty of locating and retrieving an item, thus even the heavy current demands do not reflect the actual need for information. The present system, however, is not without value and is a suitable substrate for the evolution of a system designed to meet actual needs rather than simply react to current demands. The objective of research and development under the aegis of the National Library of Medicine should be:

1. To develop models of advanced systems for acquiring, codifying, indexing, cataloging, abstracting, storing and disseminating recorded information.

2. To accelerate and guide the adaptation of these models to a

decentralized national system which utilizes the existing biomedical libraries as its framework.

3. To determine the nature and extent of user needs and the acceptability of new modalities and technologies to the students, researchers and practitioners whose informational requirements are peculiar to their respective roles.

To this end the following policy should be given effect:

1. The National Library of Medicine should support experimental programs, both intramural and extramural, to test multiple approaches to meeting the needs for biomedical information.

2. The National Library of Medicine should be a national resource for information systems research and development relevant to human health.

3. The National Library of Medicine should serve as a clearinghouse and coordinating agency for information systems R and D within the Public Health Service.

IV. Education and Training for Library Personnel

There is an urgent need for manpower which will require retraining of existing library staffs, revision of educational programs in schools of library science and the introduction of communications technologists and specialists. Because of its central role in developing and decentralizing models of improved information processing, the National Library of Medicine will be an important resource for the educational and training programs that will be essential for staffing. In order to give operating reality to its developmental efforts, the following policies guiding education and training should be given effect:

1. The National Library of Medicine should support intramural and extramural educational and training programs relevant to improving biomedical communication systems.

2. Internships, fellowships and exchange of personnel should be available to support the intramural training programs of the National Library of Medicine, with preference given to staffs of decentralized units of the subsystem of which the National Library of Medicine is the center.

3. The National Library of Medicine should make institutional grants to those academic organizations capable of offering sophisticated educational programs to those who will be the new generation of biomedical communications specialists as well as to present librarians who seek retraining.

V. Library Resources for Education in the Health Professions

As a primary national resource for biomedical communications, the National Library of Medicine can and should utilize fully its intramural and extramural programs to foster the optimum utilization and application by the individual health worker of the vast store of existing knowledge in all forms. To achieve this end, the National Library of Medicine should develop and support, directly and through regional and local biomedical libraries, research, experiments, and demonstrations to improve educational techniques enhancing such application and extend new modalities effective in the continuing education of health workers. The Library's educational mission should, however, not be conceived narrowly. Modalities of education developed for purposes of continuing education are applicable as well to its basic educational mission directed toward students and teachers of medicine, as well as toward researchers.

VI. Medical Information Network of a National Science Information System

The larger extension of communications systems concepts have focused attention on the desirability of creating a National Science Information System. Other government agencies are currently supporting studies relating to the design of such systems in various areas of science and engineering. In this process, the relationships between federal interests, and the interests of the industrial and academic communities are being explored. The fundamental purpose appears to be so to organize information resources and their intercommunication facilities that the results of government-sponsored research and development in the sciences and engineering can be made more readily available for the advance of the economy and the welfare of the people.

While many of these studies are still on the drafting board, the field of health has such a national communication system in being. Historically-evolved, the existing medical library network is in fact a communications system with traditional linkages and long operating experience. In relation to this system the National Library of Medicine has developed a central role through providing the bibliographic apparatus on which the system functions, and guaranteeing the ultimate availability of resources the system requires.

The following policies should be given effect in developing the medical library network of a national science information system:

1. The Federal Government should improve, supplement and strengthen the existing national medical library system as the basis of a medical information network.

2. The National Library of Medicine's role in development of the medical information network should be to cooperate with the public and private institutions which constitute active nodes in the system, giving special attention to the development of compatible and synergistic relationships between existing and developing modalities and technologies.

3. The National Library of Medicine should assure that new systems will guarantee improved access to health related information by all citizens who have use for it - students, researchers, teachers, practitioners and the general public.

The Board of Regents would, finally, advise the Surgeon General of their concern that the organizational position of the National Library of Medicine within the Public Health Service be such that it can fulfill its mission. The coordinating functions, the role of a clearinghouse and the responsibility for development of technical standards suggest a need for a position in the Public Health Service that involves it directly and continuously in policy decision making.

The present and future responsibilities of the National Library of Medicine imply such major increments in budget, staff and facilities that it would be useful for the National Library of Medicine to be authorized to exercise coordinating and control functions over the activities for which it is responsible. The difference between the mission of the National Library of Medicine at the time it came under the responsibility of the Surgeon General of the United States Public Health Service and the mission which the Board of Regents has recommended in this advisory statement is so vast that a reassessment of the organizational relationships to other operating units of the Public Health Service seems reasonable. The name National Library of Medicine itself conjures up an archaic and restricted image of the true mission and consideration might be given to establishing a Center for Biomedical Communications within the National Library of Medicine. Such a center would provide the broader base upon which to build the new programs recommended by the Regents.*

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*The Board is aware that the National Library of Medicine has been concerned for several years with broader communications concepts and potential program responsibilities than those contemplated by traditional research libraries. The following studies and papers serve to illustrate the Library's changing role in relation to the broad problems of biomedical communication:

The Board of Regents is sensitive to the fact that administrative matters such as the Library's organizational placement fall outside its proper purview and refers to them only to illustrate the nature of its concern for the capacity of the National Library of Medicine to fulfill its mission. In this context the Board of Regents wishes to reaffirm its belief that the National Library of Medicine should be closely linked to the principal national health effort which serves the research, teaching, and practicing medical communities.

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(1) U.S. President's Commission on Heart Disease, Cancer and Stroke. Report... Vol. 2. Washington, February 1965. A program for developing medical libraries, p. 379-99. Issued only as a reprint.

(2) Guidelines for medical school libraries. J. Med.Educ. 40 (1, pt. 1): 5-64, 1965.

(3) Information Dynamics Corporation, Wakefield, Mass. The research library and specialized information centers; a preliminary study of their relationships. Report to the National Library of Medicine. March 1964. 64, 4 p. (IDC-3015)

(4) National Research Council. Division of Medical Sciences. Communication problems in biomedical research: report of a study. Fed Proc 23:1117-76; 1297-1331, 1964. Six of the study papers. Richard H. Orr, Director of Studies.

(5) Forbes, E. J., Bagg, T. C. A study of requirements and specifications for serial monograph microrecording; a report to the National Library of Medicine. Washington, November 8, 1965. 68 p. (National Bureau of Standards Technical Note 268)

(6) West, K.M. Role of the library in learning to learn clinical medicine. J Med Educ 39:910-17, 1964.

(7) Wilson, M. P., Cummings, M. M. The National Library of Medicine: relationships to medical education and research. J Med Educ 40: 225-32, 1965.

(8) Leake, C. D. The role of the medical school library in the medical school reaching program. Bull Med Libr Ass 41:369-78, 1953.

(9) Adams, Scott. Hospital libraries: underdeveloped base for continuing education. Hospitals 38(12):52-4, June 16, 1964.

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