

AGENDA

Twenty-ninth Meeting of the  
BOARD OF REGENTS  
National Library of Medicine  
March 11, 1968  
9:00 a.m. Board Room  
March 12, 1968  
9:00 a.m. Atlanta, Georgia

- I. CALL TO ORDER AND INTRODUCTORY REMARKS Dr. Barnes Woodhall
- II. CONSIDERATION OF MINUTES OF LAST MEETING Dr. Barnes Woodhall  
TAB I  
(orange book)
- III. DATES OF FUTURE MEETINGS Dr. Barnes Woodhall  
1968 Calendars in all books TAB II  
Next Meeting - June 20-21, 1968  
Consideration of Change in Meeting Date - Nov. 7-8, 1968  
Other Possible Dates: 18-19, 21-22, 25-26  
Selection of Meeting Date - March 1969  
Possible Dates: 24-25, 27-28  
(circled dates represent first choice)
- IV. OPENING REMARKS FROM THE SURGEON GENERAL
- V. REPORT OF THE EXTRAMURAL PROGRAMS Mr. David Kefauver  
TAB I  
(gray book)
- VII. CONSIDERATION OF PENDING APPLICATIONS Mr. David Kefauver
- A. RESEARCH AND PUBLICATION GRANTS TAB II
- B. TRAINING GRANTS TAB III
- C. MEDICAL LIBRARY RESOURCE GRANTS TAB IV
- D. REGIONAL MEDICAL LIBRARY GRANTS TAB V
- E. CONSTRUCTION GRANTS (green books)
- LUNCH - Billings Auditorium
- VII. SURVEY OF HEW SCIENTIFIC INFORMATION Miss Mary Corning  
ACTIVITIES TAB III  
(orange book)

- VIII. REPORT ON MEDLARS EVALUATION STUDY  
TAB IV  
Mr. Frederick Lancaster
- IX. REPORT ON RESEARCH AND DEVELOPMENT  
ACTIVITIES  
TAB V
- A. Medlars II Evaluation - Status Report  
Mr. Davis McCarn
- B. The Remote Information Systems Center  
Mr. Ralph Simmons
- C. The Specialized Education Services Component  
of the Biomedical Communications Network  
Dr. Ruth Davis

DEPARTURE FOR AIRPORT BY BUS - 4:30

DUTCH TREAT COCKTAIL PARTY - 8:45 p.m., SHERATON EMORY, SEVILLE ROOM (main floor)  
(across the street from NMAC)

March 12, 1968  
National Medical Audiovisual Center  
National Communicable Diseases Center  
Building #3 - Room B19  
1600 Clifton Road, N.E.  
Atlanta, Georgia

RECONVENE - 9:00 a.m.

- X. REPORT OF THE DIRECTOR  
TAB VI  
Dr. Martin Cummings
- XI. TOUR OF NMAC  
Dr. James Lieberman
- XII. REPORT OF SUBCOMMITTEE ON NMAC  
Dr. Morris Tager
- LUNCH
- XIII. EXECUTIVE SESSION
- XIV. REPORT ON TRIP TO YUGOSLAVIA AND POLAND  
Dr. Stewart Wolf

ADJOURNMENT

THE BOARD OF REGENTS  
of the  
NATIONAL LIBRARY OF MEDICINE  
MINUTES OF THE 29TH MEETING

March 11-12, 1968 - Bethesda, Maryland

MEMBERS PRESENT: AUGENSTEIN, BEAN, CARLSON, MCDERMOTT, SMITH, TAGER, WOLF,  
WOODHALL, ZIPF

MEMBERS ABSENT: BROWN, EBERT, ENGLE, HEATON, MUMFORD, PLETCHER, STEWART,  
WAGMAN

ALTERNATES: Gen. Henry C. Dorris represented Gen. Pletcher both days  
Capt. John J. Downey represented Vice Admiral Brown both  
days  
Gen. George J. Hayes represented Gen. Heaton both days  
Dr. Harold Schoolman represented Dr. Engle both days

GUESTS: Mr. Robert Belsley, Educational Facilities Branch, Division  
of Physician Manpower, Bureau of Health Manpower, PHS

Dr. Luis D. Marcial, presently located in the Library on a  
cooperative training program with Mexico

Miss Elsa Nelson, Health Services Officer, Continuing Education  
and Training Branch, Division of Regional Medical Programs, NIH

Dr. Fred Cole, President, Council on Library Resources

Mr. John Sherrod, Director, National Agricultural Library

Mrs. Ileen Stewart, Biomedical Communications Study Section  
and History of the Life Sciences Study Sections, Division of  
Research Grants, NIH

Mr. Stanley Dube, Division of Dental Health, Bureau of Health  
Manpower, PHS

Dr. Bengt Liljeroot, Division of Research Facilities and  
Resources, NIH

Dr. G. Burroughs Mider, Director of Laboratories and Clinics, NIH

Mr. Edward Brunenkant, Director of Technical Information,  
Atomic Energy Commission

Mr. Charles Pelzer, Atomic Energy Commission

Mr. Courtland Randall, Atomic Energy Commission

Mr. Joseph Pauls, Division of Procurement Material and Management, OSG, PHS

Mr. Robert Walters, Division of Procurement Material and Management, OSG, PHS

Mr. Israel Feldman, Office of Management Systems, Office of Assistant Secretary for Administration, DHEW

STAFF:

Dr. Martin M. Cummings, Mr. Scott Adams, Dr. Clifford A. Bachrach, Mr. Jerome K. Barnett, Dr. John B. Blake, Dr. Jeanne L. Brand, Mr. Arthur Broering, Mr. Lawrence K. Coffin, Dr. Norman L. Cole, Miss Mary E. Corning, Mr. Robert S. Craig, Mr. Charles N. Farmer, Dr. Malcolm Ferguson, Mr. Herbert H. Fockler, Mrs. Louise H. Gamage, Dr. Raquel Halegua, Mr. James G. Hill, Mr. Thomas Joyce, Dr. Ann A. Kaufman, Mr. David F. Kefauver, Mr. Jack C. Kirkland, Mr. Gerald N. Kurtz, Mr. F. Wilfrid Lancaster, Dr. Joseph Leiter, Dr. James Lieberman, Mr. Lawrence G. Livingston, Mr. Davis B. McCarn, Mr. Edward F. McClellan, Mr. Robert B. Mehnert, Miss Marilyn Miller, Dr. Leon J. Niemiec, Mr. Ben L. Parker, Mrs. Marguerite L. Pusey, Dr. Charles N. Rice, Mr. James P. Riley, Mr. George F. Russell, Jr., Mr. Richard See, Miss Winifred E. Sewell, Dr. Norman P. Shumway, Mr. Ralph Simmons, Mr. Stanley Smith, Mr. John P. Spain, Mr. Robert E. Sumpter, Mr. Robert A. Walkington, Mr. Samuel T. Waters, Mr. Alfred Weissberg.



NEW STAFF MEMBERS

Dr. Cummings introduced several new NLM staff members to the Board:

1. Mr. Lawrence G. Livingston, Research and Development Program
2. Mr. Ben L. Parker, Research and Development Program
3. Mr. Richard See, Research and Development Program
4. Mr. Alfred Weissberg, Toxicology Information Program

NOVEMBER 1967 MINUTES APPROVED, FORTHCOMING MEETINGS SCHEDULED

The minutes of the November 16-17, 1967 meeting were approved. The dates of June 20-21, 1968 and November 25-26, 1968 were reaffirmed. March 27-28, 1969 was tentatively selected as the date of the first meeting in 1969.

REPORT OF THE DIRECTOR

Dr. Cummings discussed the history and status of the 1969 budget. After Budget Bureau reductions, the Library had 546 positions (an increase of 10 over 1968) and \$18,625,000 (\$3 million decrease). On appeal, \$600,000 was restored for systems design for the Toxicology Information Program and for the total bio-medical communications network. With a further adjustment of \$53,000, NLM has a total 1969 appropriation request of \$19,172,000.

The Library has maintained excellent relationships within the Service and Department, and with other Federal agencies such as the National Institutes of Health, National Science Foundation (through representation on its Science Information Council), the Atomic Energy Commission (with whom it is developing an interagency communication project), and the Veterans Administration (with whom it is beginning to discuss communication linkages).

The National Libraries Task Force, established last June, continues to work energetically towards the objective of developing compatible systems. Progress has already been made toward establishing machine-readable common catalog formats that may be shared by other libraries, and the development of a national serial data program.

The Director described the suit being brought by Williams and Wilkins against the Department of Health, Education, and Welfare citing the NIH Library and NLM for infringements of the copyright law. The Library welcomes this Court of Claims test; the outcome will affect photocopying practices in all libraries throughout the Nation.

EXTRAMURAL PROGRAMS 1/ 2/ 3/EXTRAMURAL PROGRAMS STAFF CHANGES

Mr. Kefauver announced the appointment of Dr. Leon J. Niemiec, in the capacity of Regional Medical Library Officer, replacing Dr. Louis Gerber.

Mr. Arthur Broering has officially joined the staff as Construction Program Officer, having worked with the Extramural Programs under an arrangement with the Office of Architecture and Engineering, Division of Research Facilities and Resources, NIH. Mr. Robert Walkington is now Acting Chief, Facilities and Resources Division.

REPORT OF THE ASSOCIATE  
DIRECTOR FOR EXTRAMURAL PROGRAMS

Mr. Kefauver reported on the current status of the Extramural grant and contract programs, and the program developments expected in the next fiscal year with the reduced appropriations anticipated for the Extramural Programs. The President's Budget requests \$6.827 million for fiscal 1969, compared to \$11.25 million requested for fiscal 1968. No new funds are requested in the President's Budget for medical library construction for fiscal 1969, and reduced amounts have been requested for the research and publications programs.

Mr. Kefauver presented projections of the levels of new grant and contract activity which we expect to be able to support for each of the seven programs under the Medical Library Assistance Act, in fiscal 1968 and 1969, noting that approximately \$4 million of 1968 funds must be carried forward into 1969 in the construction, resource grant and regional medical library programs.

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- 1/ Proceedings of meetings are restricted unless cleared by the Office of the Surgeon General. The restriction relates to all material submitted for discussion at the meetings, the agenda for the meetings, the supplemental material, and all other official documents.
  - 2/ For the record, it is noted that members absent themselves from the meeting room when the Committee has under individual discussion applications (a) from their respective institutions, (b) in which a conflict of interest might occur.
  - 3/ The Board of Regents, when considering the Extramural Programs of the NLM, also consists of the Board of Regents Advisory Council for Extramural Programs and National Medical Libraries Assistance Advisory Board and concurrently discharges the responsibilities of all three bodies.

REVIEW OF APPLICATIONS NEEDING SPECIAL  
CONSIDERATION BY THE BOARD OF REGENTS SUBCOMMITTEE  
FOR EXTRAMURAL PROGRAMS

The Subcommittee met with the Extramural staff on March 10, 1968, to discuss certain research, medical library resource, regional medical library, and construction grant applications which required special consideration, such as those applications requesting more than \$50,000 per year.

REVIEW OF GRANT APPLICATIONS

The Board of Regents, acting concurrently as the Board of Regents Advisory Council for Extramural Programs and as the National Medical Libraries Assistance Advisory Board, reviewed the following grant applications:

Research Grants	Reviewed	39	totaling	\$ 1,238,853*
	Approved	22	totaling	508,813

\* NLM Primary Assignment (37 - \$1,168,059) Secondary Assignment (2 - \$70,794)

Training Grants	Reviewed	1	totaling	38,055
	Approved	1	totaling	38,055
	Deferred	2	totaling	58,459

Resource Grants	Reviewed	40		
	Approved	34		
	Deferred	4		
	Disapproved	2		

Construction Grants	Reviewed	4	totaling	5,613,532
	Approved	4	totaling	4,628,958

Regional Medical Library Grants	Reviewed	3	totaling	1,131,788
	Approved	3	totaling	554,733

Approval was recommended for the following library construction grant applications:

- 1 J06 LM 00292-01A1 University of Utah Medical Sciences Library,  
Salt Lake City, Utah
- 1 J06 LM 00365-01 Auburn University School of Veterinary Medicine,  
Auburn, Alabama
- 1 J06 LM 00402-01 Ohio State University, College of Medicine Center,  
Columbus, Ohio
- 1 J06 LM 00403-01 New Jersey College of Medicine and Dentistry,  
Newark, New Jersey

Approval was recommended for the following regional medical library grants:

- 2 G04 LM 476-02 Francis A. Countway Library of Medicine, Harvard Medical School, Boston, Massachusetts (2nd Year)
- 1 G04 LM 555-01 The New York Academy of Medicine, New York, New York
- 1 G04 LM 615-01 The John Crerar Library, Chicago, Illinois

Detailed information may be found in the attached summaries of Board actions.

#### SURVEY OF HEW SCIENTIFIC INFORMATION ACTIVITIES

Miss Mary Corning reported on a four-month study made at the request of Dr. Philip R. Lee, Assistant Secretary for Health and Scientific Affairs. The product of the study, a resource document describing the nature and scope of the scientific communications activities of the Department and relating these to the missions of the constituent agencies, has been distributed to the Assistant Secretaries and to the agencies.

The report raises two fundamental questions. The first of these is whether DHEW is ready to accept and execute the "responsible agency" concept for health, education, and welfare. If yes, a second question asks whether the Department is ready to examine both the functions and organization for science communications in order to establish some balance in planning, resources, and activities, to meet these objectives.

#### REPORT ON MEDLARS EVALUATION STUDY

Mr. F. Wilfrid Lancaster reported on the completed MEDLARS evaluation study which was carried out on the basis of an analysis of search performance for 300 requests over a 12-month period. Performance was measured by two figures: a "recall ratio," or the proportion of useful citations in MEDLARS actually retrieved; and a "precision ratio," the ability to withhold citations to non-relevant documents. Failures of the system were variously attributed to indexing, vocabulary, searching strategies, and the interaction between the requestor and the system.

Recommendations made on the basis of the study include: redesign the search request form; acquire better tools to help the searcher; abolish the distinctions in different levels (depth, non-depth), of indexing; develop more detailed entry vocabulary; and use more subheadings in the system.

#### THE SPECIALIZED EDUCATION SERVICES COMPONENT OF THE BIOMEDICAL COMMUNICATIONS NETWORK

Mr. Davis McCarn, speaking for Dr. Ruth Davis, discussed the planning of a satellite communications network in terms of its services for medical education, specifically, continuing medical education, and education of the lay public. Present planning includes a national network, regional networks, interconnections of regional networks, and program support for the entire system.

The program hopes to initiate a three-year pilot experiment in the use of satellites. Discussions have been held with COMSAT Corporation; COMSAT has agreed to modify its proposals to the Federal Communications Commission to include a domestic experiment in biomedical communications. The initial design, development, and implementation of the system (not including annual operating costs) would be approximately \$6 million.

#### MEDLARS II EVALUATION - STATUS REPORT

Mr. Davis McCarn described progress made to date on the selection of a contractor for MEDLARS II. The overall process of evaluation included: validation to determine whether all stated NLM requirements have been provided in the proposals; evaluation of individual proposals according to a standard procedure; review by a separate group; weighting scores and totalling. The process is not yet complete, and a final selection has not yet been made.

#### THE REMOTE INFORMATION SYSTEMS CENTER (RISC)

Mr. Ralph Simmons described progress in NLM's Remote Information Systems Center, the Library's first attempt at on-line remote information handling. The Center is designed to: provide access to remote data banks; experiment with research and development performed by others; demonstrate techniques; provide potential for training and education; directly assist in NLM activities.

RISC currently provides access to citations in COLEX in Santa Monica, California, TIPS at MIT, and in the near future, to the Army's Chemical Information Data System.

Four files based on NLM data have been established experimentally through RISC to assist Library operations: express catalog service; interlibrary loan records; reader registration; and personnel management data.

#### TOUR OF THE NATIONAL MEDICAL AUDIOVISUAL CENTER

At the Board's Atlanta session, Dr. James Lieberman described the programs of NMAC and conducted the Regents on a tour of the facility. Following the tour, Dr. Tager presented a report by the Board's Subcommittee on NMAC. The report is appended to the minutes of the Executive Session.

#### REPORT ON TRIP TO YUGOSLAVIA AND POLAND

Dr. Stewart Wolf reported on a visit he and Dr. Morris Tager made to Poland and Yugoslavia recently. The object of the visit was to discuss the Library's P.L. 480 programs in these two countries.

Dr. Wolf noted that the critical review program in Poland is well established and running reasonably smoothly. Problems brought up by the Poles included the difficulty of receiving an adequate number of American scientific journals, flexibility of contract deadlines, flexibility of funding, and travel restrictions imposed by the Polish government.

The two Regents found Yugoslav governmental officials, in general, unreceptive to their proposals. Although the scientists are receptive, the launching of a critical review program in Yugoslavia similar to the one in Poland depends on more positive action by officials of the Yugoslav government.

ACTIONS TAKEN BY THE BOARD

1. The Board accepted the report of the Ad Hoc Subcommittee on NMAC after amending to reflect the establishment of a permanent Subcommittee of the Board for the NMAC and the establishment of a technical advisory group of qualified experts at the NMAC or NLM level. (Appendix A)
2. The Board unanimously adopted a resolution (Appendix B) honoring Senator Lister Hill on his retirement. It will be presented to Senator Hill during the next Board meeting.
3. A resolution (Appendix C) calling on NLM to assume a leading role in developing a health-oriented "Network for Knowledge," concerned with the improvement of continuing health education and of public education for the medically uninformed, was unanimously adopted by the Board.

Respectfully submitted,



Martin M. Cummings, M.D.  
Executive Secretary to the Board of Regents  
National Library of Medicine

National Library of Medicine  
Board of Regents'  
Subcommittee on NMAC

Report of Meeting  
at  
National Medical Audiovisual Center

February 13, 1968

(As Amended and Adopted by the Board of Regents, March 12, 1968)

(Addenda:

- I. Charge to Subcommittee by Chairman, Board of Regents
- II. Dimond Report
- III. Revised NMAC Program Mission Statement)

## I. Participants

### A. Subcommittee members:

Dr. Morris Tager (Chairman), Dr. Robert Ebert, Mr. Bruno Augenstein

### B. NLM (NMAC) Staff:

Dr. Martin Cummings, Dr. James Lieberman, Mr. Edward McClellan,

Mr. Jerome Barnett, Dr. Malcolm Ferguson

## II. Charge to Subcommittee (Addendum I)

On January 19, 1968, Dr. Barnes Woodhall, Chairman, Board of Regents, asked that the resources and operations of NMAC be reviewed during the Subcommittee's site visit. He called for: comments on the recommendations in the Report of the Ad Hoc Group on Biomedical Audiovisual Communications (Dimond Report); specific attention to be directed to a definition or reorientation of goals for NMAC; and the establishment of priorities in certain operational areas. In addition, the Subcommittee was asked to determine if the Board of Regents' Advisory Statement on NLM Policy provided support for a comprehensive audiovisual program in medical education at all levels. The matter of user charges for audiovisual materials was also to be considered.

## III. Subcommittee Review of Dimond Report (Addendum II)

The Subcommittee members found the Dimond Report useful as a basis for focusing their views on the operations of NMAC and policies pertaining to them. A number of modifications of or alternative proposals to the content of the report were recommended. These are organized below under the numbers assigned to specific recommendations in the Dimond Report.



1. To replace the Subcommittee of the Board of Regents established at the November, 1967 Board Meeting, it was thought appropriate to have two groups of experts to provide NMAC with advice.
  - a. A standing Advisory Committee of the Board on the NMAC.

This committee would be concerned with general policy and program overview of the functions and activities of the National Medical Audiovisual Center. This committee, as a Subcommittee of the Board, would review developments regularly with the Director of the NMAC, and would report to the Board at its regular meetings.
  - b. A standing Technical Committee to be concerned with audio-visual media, instructional methods and technology. At the option of the Director, NMAC, this standing Technical Advisory Committee would be advisory to the Director of the Center or the Director of the Library, on technical and methodological problems.
2. The production policy of NMAC should be directed primarily toward professional health education at all levels.
3. The Dimond Report recommendation on indexing and cataloging was acceptable to the Subcommittee. (The members were informed that implementation is underway.)
4. In the distribution functions of NMAC primary emphasis should be placed on loans to professional health individuals and organizations. Distribution to other users should not be excluded if resources are available. The Subcommittee had no enthusiasm for the establishment of regional distribution centers.

5. The recommendation on acquisition policy in the Dimond Report was accepted. The Subcommittee believes that the Program Committee should advise on acquisition criteria and clearinghouse activities.
6. The Subcommittee agreed that the Motion Picture Archives Unit should be merged with the History of Medicine Division at NLM. It also believes that an additional advisory committee is needed to facilitate the selection and utilization of this archival material.
7. With regard to the Still Picture Collection, NMAC should develop criteria on what subject matter is to be collected, evaluate the holdings in the present file, and streamline it by deleting irrelevant and superfluous material.
8. NMAC should have the responsibility for training biomedical audiovisual personnel, for encouraging production programs in the professional health fields, for the development of audiovisual techniques and evaluation procedures, and for other research and development activities. The Standing Committees should be consulted in the development and execution of these programs.
9. This recommendation was modified and is merged with No. 8.
10. The Subcommittee was impressed with the potential of the Community Medical Television System and looks favorably on a governmental organization like NMAC serving as an innovator of such ventures. However, when the project becomes operational, then financing must be the responsibility of others. Before initiation of a project like CMTS there should be a clear and firm contract agreement on the financial obligations of both parties.

11. The Subcommittee believes that NMAC should be aware of biomedical audiovisual activities on the international scene. However, it concluded that NMAC should not embark on international programs using intramural funding.

#### IV. Additional Considerations by Subcommittee

1. In addition to Dr. Woodhall's Charge, four questions were directed to the Subcommittee by the Director of NLM:
  - a. Is the Subcommittee in agreement on the need to reorient NMAC programs to broader purposes of continuing professional education?

The Subcommittee was in favor of reorienting NMAC activities to embrace all professional health programs.

- b. What broad guidelines does the Subcommittee have to suggest to achieve this reorientation?

The Subcommittee recommended the establishment of a Program Committee and a Technical Committee to advise NMAC. (See Subcommittee reaction to Recommendation 1. Also see Subcommittee's revisions of the recommendations on production and distribution policies incorporated in the Dimond Report.)

- c. Is there consistency with the Board's Advisory statement on policy?

It was agreed that the reorientation of NMAC programs is consistent with the Board of Regents' Advisory Statement on Policy to the Surgeon General, Public Health Service.

- d. Should any exceptions be made for NMAC user charges?

The Subcommittee concluded that the NLM policy of free loan should apply to audiovisual materials as well as literature

and that it would cost more to institute charges than would be collected. However, a mechanism should be developed to encourage sales of audiovisual materials similar to that employed by the Superintendent of Documents for the distribution of literature.

2. The Subcommittee reviewed the Reorganization document for NMAC and made suggestions for revision of the Program Mission of the Center (Addendum III). The revisions were designed to strengthen the position of NMAC as the central facility of the Public Health Service for planning and fostering audiovisual programs. In addition, the Subcommittee defined the important role that it believes the Center should have in Research and Development activities relating to audiovisual techniques, media, and services. It was stressed that this R & D effort should relate to and be coordinated with the total NLM R & D program.

The Subcommittee also recommended that a person knowledgeable in the fields related to medical education be recruited to head the new Educational Systems and Development Branch.

Charge to Subcommittee on NMAC

The Subcommittee is requested to review the resources and operations of the National Medical Audiovisual Center (NMAC) and present a preliminary report to the Board at the March meeting on the following topics, with recommendations where indicated:

1. Reaction to the recommendations of the Subcommittee of the Ad Hoc Group on Biomedical Audiovisual Communications (Dimond Report) with respect to:
  - the implications of accepting the major recommendations of the report and the reorientation of NMAC goals and objectives that would be required.
  - priorities that should be established among NMAC programs developed for support to medical education at the medical school, postgraduate and continuing levels, and for lay education in health matters.
  - the extent to which NMAC programs should emphasize the production of audiovisual materials, the development of audiovisual systems and communications techniques, the distribution of audiovisual materials, and development of a comprehensive information clearinghouse function.
  
2. The extent, if any, to which the existing Advisory Report on Policy from the Board of Regents of the National Library of Medicine to the Surgeon General, Public Health Service (1966) may require modification to provide policy support for a comprehensive audiovisual program in medical education at all levels. Specific attention should be paid to the matter of user charges.

The Subcommittee members are invited to identify, consider and make recommendations on any other matters pertaining to NMAC and overall NLM policy and operations that may be of concern to them.

January 19, 1968

Barnes Woodhall, M.D.  
Chairman, Board of Regents  
National Library of Medicine

Report of the  
Subcommittee  
of  
AD HOC GROUP ON BIOMEDICAL AUDIOVISUAL COMMUNICATIONS  
for the  
National Library of Medicine  
October 22, 1967

(Addenda:

I. Task Force Report

II. Minutes of Ad Hoc Group, August 17, 1967)

Dr. Barnes Woodhall

\*Dr. E. Grey Dimond

Dr. Bernard V. Dryer

Mr. Reed Harris

Dr. Richard D. Judge

Dr. George E. Miller

Dr. Michael T. Romano

\*Dr. David S. Ruhe

\*Mr. Sy Wexler

Mr. Don White

\*Dr. Vernon E. Wilson

Dr. Robert Berson

\*Members of Sub-committee

## 1. BACKGROUND

The Director of the National Library of Medicine, Martin M. Cummings, M.D., invited an ad hoc advisory group to meet at NLM on August 17, 1967. The recent organizational transfer to NLM of the renamed National Medical Audiovisual Center had made it necessary for the Library to review its broad responsibilities in medical communication. In his letter of invitation he stated:

"... We believe that the audiovisual efforts of the Library should be directed mainly toward medical education, with particular emphasis on continuing medical education. In charting the course of our film and television activities we wish to draw on the experience and advice of persons with expert knowledge in the areas of medical school instruction, postgraduate education, and communications media. With this in mind, an Ad Hoc Committee on Biomedical Audiovisual Communications is being formed to provide consultation to the Library... this Committee('s)... primary function will be to help us in developing realistic plans for mobilizing our audiovisual and other resources for more effective support to medical education."



Prior to the meeting of the Ad Hoc group, a task force of NLM personnel inspected the National Medical Audiovisual Center and their report was available to the Ad Hoc group (Addendum I).

A one day meeting of the Ad Hoc group was held at NLM on August 17, 1967. A Sub-committee was named to further study NMAC on location and prepare a report for the Board of Regents. The minutes of meeting are attached (Addendum II).

The Sub-committee (Dimond, Ruhe, Wexler, Wilson) met at Atlanta on October 11, 12, 13 to study the activities of the National Medical Audiovisual Center. They were assisted by NLM staff members, Dr. Ruth Davis and Dr. Malcolm Ferguson. The Sub-committee also thoroughly reviewed the earlier report of the Task Force and found itself in substantial agreement with it. This present report will not restate the content of the Task Force report; the Sub-committee endorses the report and its analysis of NMAC. Pages 17 and 18 of the Task Force report make specific recommendations and the Sub-committee very carefully reviewed these and endorsed or modified these recommendations as follows:

## II. RECOMMENDATIONS OF THE SUB-COMMITTEE

1. That a National Medical Audiovisual Center Advisory Committee be appointed by the Regents, upon recommendation by the Director of NLM, to provide NMAC with program and technical advice.

2. That the production policy of NMAC be directed mainly toward

medical education, with particular emphasis on continuing medical education. Programming should be based upon a planned curriculum guided by the National Medical Audiovisual Center Advisory Committee, supplemented by faculty advisors from the medical schools.

3. NMAC indexing and cataloging functions, publication of catalogs, and other bibliographic services should be coordinated with the appropriate programs of NLM. Steps should be taken to relate these NMAC programs to MEDLARS as quickly as feasible. Intra NLM working committees should be established immediately to implement this recommendation.

4. The distribution functions of NMAC should be expanded, the materials suitably housed in fireproof quarters, and policy established regarding the audiences to whom audiovisual materials are distributed. Regional distribution centers should be established; the present single location is an ineffective means of handling 70,000 yearly requests.

5. That the audiovisual material acquisition policy of NMAC should be broadened and supported to enable it to acquire, under well-defined selection criteria developed by the Advisory Committee, a collection of the world's significant audiovisual communication materials and to serve as a clearinghouse for biomedical audiovisual materials and information. Audiovisual materials should be interpreted to include moving picture films, still slides, cartridge films, video tapes, etc.

6. The Motion Picture Archives Unit should be merged with the History of Medicine Division of NLM; the collection should be transferred

to Bethesda, where appropriate housing, presentation facilities and publicity, and a strengthened acquisition program should be mounted and supported.

7. The contents of the Still Photograph Collection should be examined with the view to returning those photos relating specifically to the National Communicable Diseases Center (an index of these returned pictures should be at NLM). The suitability of the remaining collection as a nucleus for a national still picture collection housed and cataloged at NLM should be determined. The probable need for duplicates in several regional libraries should be considered. A continuing acquisition policy should be established. Careful definition of the scope of this collection should be made; unless defined, it could be overwhelming.

8. NMAC should have the prerogative of encouraging programs for the production of biomedical audiovisual material, for the training of biomedical communication personnel, and for the applied development of audiovisual and telecommunication techniques. These programs should be under the policy guidance of the Advisory Committee. Those extramural programs involving grants and contracts should be handled through the existing Extra Mural Program of NLM, and not as a separate activity of NMAC.

9. NMAC should not be involved in fundamental research and development. This responsibility, and computers, systems analysis,

long distance 'hardware' development, should remain a function of the appropriate department of the parent NLM. Applied research or development involving, for example, the application of evaluation techniques to audiovisual materials would be a proper area for NMAC.

10. The Community Medical Television System should be carefully evaluated including effectiveness and professional endorsement in outlying hospitals. This program is now past the developmental stage and it would seem appropriate to divest NMAC from financial support of it. A transfer of CMTS staffing and funding responsibility to Emory Medical School, the Georgia Regional Medical Program, or other suitable local authority should be done as rapidly as possible. NMAC personnel should continue in a consulting role, gaining experience in production and technical matters and acting as advisor to the development of similar systems in other regions.

11. The role of NMAC in the field of international health communications should be guided by the policies and activities of the National Library of Medicine.

### III. PLAN OF ACTION

The activities at Chamblee, Ga. (Still Photograph Collection, Motion Picture Archives, Audiovisual Distribution Function) are presently in a non-fireproof building. Highest priority should be given to developing a cataloging system fully in keeping with NLM policy, safeguarding the collections, and to establishing regional audiovisual distribution centers.

The Georgia facility could become a regional distribution center, with central coordination at NLM.

The Community Medical Television Service should become the staffing and financial responsibility of Emory Medical School, the Georgia Regional Medical Program, or other local agency in the very near future.

A formal study to determine the feasibility for removal of the production facilities at NMAC to Bethesda should be made. Immediately, regardless of removal, a re-orientation of production policy relative to a planned, cohesive, national program for continuing medical education should be developed. The careful integration of these activities with the needs of the Regional Medical Program and other agencies for continuing medical education should be of basic concern to the National Library of Medicine. This concern should bring about a center for biomedical communication which will deal with the effective utilization of all teaching media, under the guidance of a national faculty, and the utilization of all communication techniques: a University without Walls.

PROGRAM MISSION  
of  
National Medical Audiovisual Center

(Draft Revision by NLM Board of Regents'  
Subcommittee on NMAC, February 13, 1968)

The National Medical Audiovisual Center plans, directs, conducts, and coordinates a national program in biomedical audiovisual communications, both anticipating and responding to critical and important needs. To accomplish this program it:

1. Operates the central facility in the Public Health Service which plans for and fosters the development, production, distribution, evaluation, and utilization of motion pictures, videotapes, and other audiovisual forms.
2. Coordinates a comprehensive audiovisual program for the Service to assure maximum responsiveness and economy of funds and manpower.
3. Performs research and development necessary for pioneering innovation in audiovisual techniques, media, and handling, distribution, and production methods, and provides appropriate consultation and assistance in the development, and for the exploitation of specialized audiovisual activities. This Research and Development program of the NMAC must be coupled to and compatible with the overall R & D program of the NLM; in particular, all R & D which interfaces with computer systems, retrieval and classification systems, standard formatting requirements, and transmission and terminal developments related to the "National Medical Network" must be guided by the total NLM R & D program.
4. Encourages the production, dissemination, and utilization of medical films and other audiovisuals in the schools of health professions and elsewhere, and fosters the development of a standard repository of basic materials for professional use (which may be done by duplication and sale of such materials, in addition to temporary loan).
5. Operates a national clearinghouse and archival program encompassing all relevant materials.
6. Acts as a national/international film and videotape center for the distribution and exchange of biomedical audiovisuals.

SENATOR LISTER HILL

After thirty-five years of imaginative leadership in legislation, Senator Lister Hill is retiring. It is fitting that the Board of Regents of the National Library of Medicine pay him homage on this occasion. As the son of a physician, he soon became aware of the continual need for progress and renewal in the biomedical field. Simultaneous attacks on several fronts were required. Long before regional centers were conceived, community hospitals were built to bring the benefits of research to the people. Advancement of learning in science was fostered by the several programs of support for medical investigators under the aegis of the National Institutes of Health. The National Library of Medicine, which serves as the central nerve network for the exchange of facts and ideas, is now housed in the splendid new building he did so much for.

In promoting and achieving each of these ends, Lister Hill had an essential role as the imaginative leader. Every nation's institutions are the supporting structures on which society depends for the exercise of its several functions; and these institutions are but extensions and projections of its people, the achievements of its leaders. When they reach greatness a country flourishes. Senator Hill is a unique exemplar of the highest type of legislator who translates ideas and ideals into vital action.

In an age of science, when not only advance but indeed continued existence depends on the productive and effectual progress of knowledge through the exchange of information, a modern library holds the central position. That the National Library of Medicine has been able to supply

critical leadership and innovation, creating MEDLARS, continuing to provide current indexing, and serving as custodian of its treasure of books, journals and periodicals, has been the result in no small part of the skill and wisdom of Lister Hill.

This library is the physical and functional embodiment of his broad views and effective action. His strength imparted strength to the Library with large implications for education and learning generally. Thus scholarship and research have been nurtured at the same time that advances in medicine became more readily available for improving the health of the citizen. The present stature and potential for growth of the Library are in the literal sense, a tribute, indeed a monument, to Lister Hill. His earlier visions are realized in the building. His visions of the future are our blueprints for development, expansion and change.

On the occasion of his retirement from the arena of active legislative service, the Board of Regents of the National Library of Medicine, at its meeting in March 1968, brings homage and tribute to Lister Hill. We join many thousands of beneficiaries, individual persons and organizations, in this expression of heartfelt gratitude, for in honoring this great man, we honor ourselves.



RESOLUTION on the "NETWORK for KNOWLEDGE"  
adopted at the  
(Twenty-ninth Meeting of the BOARD OF REGENTS, March 11-12, 1967)

In a memorandum of February 26, 1968, the President established a committee to "conduct a comprehensive study of the feasibility and means of implementing the 'network for knowledge'" referred to by him on several official occasions since the summer of 1967. The Presidential memorandum asked that the study include planning for a national network of information systems, planning for the biomedical communications network, recommendation for pilot international projects and evaluation of proposals to link educational centers within the United States.

The Board of Regents warmly endorses the decision of the President that the Biomedical Communications Network be considered as a likely candidate for the developing Network for Knowledge. Also, the Board concurs with the consensus of the National Scientific and Technical Information Systems (NASTINS) Task Force of COSATI that the Biomedical Communications Network is the logical first prototype for a national network of information systems.

In accordance with these policy decisions the Board approves the planning, design and development work now underway by the National Library of Medicine to implement the Biomedical Communications Network as a whole and in particular to implement the Specialized Educational Services Component of the Network at an early date. The Board recommends that present planning be expedited on an urgent high-priority basis.

The Board recognizes that implementation of these services will require significant sustained funding, and urges that these funding needs be

brought to the specific attention of those appropriate governmental and private organizations whose continued support will be essential for the development of the Network, and particularly the SES Component of the Network.

In line with its previously established policy (1966) the Board reiterates its position that the NLM assume a leading role in the improvement of continuing medical education and of public education for the medically uninformed. The Board is confident that one very important means for achieving this objective is through the application of advanced communication and computer technology as evidenced in the present design and development work underway by the NLM staff.

The Board believes also that professional health related societies should share responsibility with the NLM in the area of communications for continuing education in the health professions; particularly it believes that such societies and associations should be concerned with substantive needs of those educational programs broadcast through conventional or satellite media. The Board will, itself, undertake to assist the essential cooperative effort by the NLM and professional societies and other pertinent health-related groups.

AGENDA

Thirtieth Meeting of the  
BOARD OF REGENTS  
National Library of Medicine  
9:00 a.m., June 20-21, 1968  
Board Room

- I. CALL TO ORDER AND INTRODUCTORY REMARKS Dr. Barnes Woodhall
- II. CONSIDERATION OF MINUTES OF LAST MEETING TAB I Dr. Barnes Woodhall  
(orange book)
- III. DATES OF FUTURE MEETINGS TAB II Dr. Barnes Woodhall  
1968-1969 Calendars in all books  
Next Meeting - November 25-26, 1968  
Subsequent Meeting - March 27-28, 1969  
Selection of Meeting Date - June 1969  
Possible Dates: 19-20, 26-27 (ALA meets June 22-28)
- IV. REMARKS FROM THE DIRECTOR, NIH Dr. James Shannon
- V. REPORT OF THE DIRECTOR, NLM TAB III Dr. Martin Cummings
- VI. MEDLARS OPERATIONAL WORKLOAD - TAB IV Dr. Joseph Leiter  
DEVELOPMENT OF USER CONTROLS
- VII. REPORT OF THE HISTORY OF MEDICINE TAB V Dr. John Blake  
DIVISION
- LUNCH - Billings Auditorium
- VIII. REPORT OF THE EXTRAMURAL PROGRAMS TAB I Mr. David Kefauver  
(gray book)
- IX. CONSIDERATION OF PENDING APPLICATIONS Mr. David Kefauver
- A. RESEARCH AND PUBLICATION GRANTS TAB II
- B. TRAINING GRANTS TAB III
- C. RESOURCE GRANTS TAB IV
- D. REGIONAL GRANT TAB V
- E. CONSTRUCTION GRANTS (green books)
- ADJOURNMENT

## DINNER (DUTCH TREAT) - COMMISSIONED OFFICERS CLUB, NPMC

Cocktails 6:00 p.m.

Dinner 7:00 p.m.

CEREMONIES HONORING SENATOR LISTER HILL - 8:30 p.m.

Billings Auditorium

GUEST SPEAKER - SENATOR JOHN SPARKMAN - "LAWMAKERS AND MEDICINE"

PREVIEW OF EXHIBIT "LAW AND MEDICINE" - 9:30 p.m.  
(Refreshments will be served)

Lobby, NLM

RECONVENE - 9:00 a.m. - June 21, 1968

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|---|----------|--|
| X. COPYRIGHT  | TAB VI   | Mr. Scott Adams<br>Dr. James Lieberman |
| XI. PROGRESS REPORT ON THE MEDLARS II<br>PROCUREMENT  | TAB VII  | Mr. Davis McCarn<br>Mr. Alfred Asch    |
| XII. PROGRESS REPORT ON THE BIOMEDICAL<br>COMMUNICATIONS NETWORK  | TAB VIII | Dr. Ruth Davis                         |
| XIII. PROGRESS REPORT ON THE TOXICOLOGY<br>INFORMATION PROGRAM  | TAB IX   | Dr. Charles Rice                       |
| XIV. PROGRESS REPORT ON DEVELOPMENT OF<br>GRAPHIC IMAGE RETRIEVAL SYSTEM  | TAB X    | Mr. Samuel Waters                      |
| LUNCH   |          |  |
| XV. PROGRESS REPORT ON IMPLEMENTATION OF<br>BOARD RECOMMENDATIONS CONCERNING<br>NATIONAL MEDICAL AUDIOVISUAL CENTER | TAB XI   | Dr. James Lieberman                    |
| XVI. EXECUTIVE SESSION  |          |  |
| XVII. OTHER BUSINESS  |          |  |
| ADJOURNMENT   |          |  |

THE BOARD OF REGENTS  
of the  
NATIONAL LIBRARY OF MEDICINE

MINUTES OF THE 30TH MEETING

June 20-21, 1968 - Bethesda, Maryland

MEMBERS PRESENT: AUGENSTEIN, BEAN, CARLSON, EBERT, MCDERMOTT, TAGER, WAGMAN,  
WOLF, WOODHALL, ZIPF

MEMBERS ABSENT: BROWN, ENGLE, HEATON, MUMFORD, PLETCHER, SMITH, STEWART

ALTERNATES: Gen. Henry C. Dorris represented Gen. Pletcher both days  
Capt. John J. Downey represented Vice Admiral Brown both days  
Gen. George J. Hayes represented Gen. Heaton both days  
Dr. Harold Schoolman represented Dr. Engle both days

BOARD MEMBERS ELECT: Dr. William G. Anlyan, Dr. Max Michael, Jr. and Dr. George W. Teuscher

GUESTS: Dr. Philip Lee, Assistant Secretary for Health and Scientific Affairs, DHEW  
Mr. Bernard Feiner, Office of General Counsel, DHEW  
Mr. Thomas Byrnes, Department of Justice  
Mr. Joseph Murtaugh, National Academy of Science  
Mrs. Ileen Stewart, Biomedical Communications Study Section and History of the Life Sciences Study Section, Division of Research Grants, NIH  
Mr. John Sherrod, Director, National Agricultural Library

STAFF: Dr. Martin M. Cummings, Mr. Scott Adams, Mr. Alfred Asch, Dr. Clifford Bachrach, Mr. Thomas Bagg, Dr. John Blake, Dr. Jeanne Brand, Mr. Lawrence Coffin, Miss Mary Corning, Dr. Ruth Davis, Dr. Malcolm Ferguson, Mr. Joseph Foley, Mrs. Louise Gamage, Dr. Raquel Halebua, Mr. James Hill, Mr. Thomas Joyce, Dr. Ann Kaufman, Mr. David Kefauver, Mr. Gerald Kurtz, Dr. Joseph Leiter, Dr. James Lieberman, Mr. Lawrence Livingston, Mr. Davis McCarn, Mr. Robert Mehnert, Dr. G. Burroughs Mider, Miss Marilyn Miller, Mr. Daniel Mills, Dr. Leon Niemiec, Mrs. Rita Pusey, Dr. Charles Rice, Mr. James Riley, Mr. George Russell, Mrs. Ann Sabin, Mr. Richard See, Dr. Norman Shumway, Mr. Ralph Simmons, Mr. Stanley Smith, Mrs. Barbara Sternick, Mr. Robert Walkington, Mr. Samuel Waters, Mr. Alfred Weissberg

*Dr. Cummings files*

NEW REGENTS

Dr. Woodhall, Chairman of the Board, welcomed three newly appointed and confirmed members whose terms begin August 3, 1968: William Anlyan, M.D.; George Teuscher, D.D.S.; and Max Michael, Jr., M.D.

NEW STAFF MEMBERS

Dr. Cummings introduced several new NLM staff members:

1. Dr. G. Burroughs Mider, Special Assistant to the Director for Medical Planning and Evaluation.
2. Mr. Alfred Asch, Chief, Office of Computer and Engineering Services.
3. Mr. Daniel A. Mills, Chief, Products and Services Planning and Development, Toxicology Information Program.
4. Mr. James G. Hill, Assistant Executive Officer (formerly NLM Financial Management Officer).

MARCH 1968 MINUTES APPROVED, FORTHCOMING MEETINGS SCHEDULED

The minutes of the March 11-12, 1968 meeting were approved. The dates of November 25-26, 1968 and March 27-28, 1969 were reaffirmed. June 19-20, 1969 was tentatively selected as the date of the second meeting in 1969.

REMARKS BY DR. PHILIP LEE

Dr. Lee reviewed for the Board the recent steps taken to reorganize the health functions of DHEW. He assured the Regents that NLM would continue to serve as a National Library of Medicine. For example, the biomedical communications network being planned by the Library will have a great effect on medical and health professional schools across the country. The Library's influence will be felt not only in graduate education, but also in undergraduate education where the communications technology is gradually beginning to take hold.

Dr. Lee emphasized that the establishment of his office would not mean an added administrative level in the budget review process. Together, he and the Secretary will make the final budget review of all health programs in DHEW. Dr. Lee invited the Regents to make known their views directly to him and the Secretary.

In describing the importance of the Library's future role, Dr. Lee emphasized several functions:

1. Expanding NMAC's role in communications;
2. Developing a competent NLM staff to provide technical assistance and consultation to other Federal efforts in communication "They will relate not just to medicine but, using this as a prototype, will serve as a model for a much broader development in terms of communications networks;"
3. Assisting science information centers such as those established by NIH; and
4. Developing the Toxicological Information and Poison Control Center Programs.

Dr. Lee noted that in order to counter the criticism that new medical knowledge is not being applied rapidly enough, the Library and the communications network that is being established will play a more important role in the future with respect to the organization and delivery of health services. The program with the most immediate concern in this area is the Regional Medical Program. Dr. Lee was gratified to see that there were already some "very excellent relationships" between the Library and the Regional Medical Program.

REMARKS BY DR. STEWART SESSOMS, NIH

Dr. Sessoms welcomed the Library to the "new" National Institutes of Health. With a set of "ideal" authorities, Dr. Sessoms noted that NIH is looking forward to an era of coordinated support for the educational and research functions in the Nation's medical centers. A report of a reassessment of NIH functions is expected sometime after August 1. He predicted there will be no adverse effect of this reassessment on NLM; in fact, since the Library can perform certain functions more efficiently than other parts of NIH, NLM may find its scope expanded as a result of the reassessment. Dr. Sessoms singled out the NLM Research and Development Program as especially worthy of commendations. The Center for Biomedical Communication, toward which the R & D efforts are directed, is important, he added, and we are headed for the establishment of such a Center as soon as the budget permits.

REPORT OF THE DIRECTOR

Dr. Cummings reviewed the 1968 budget for the Board. Although the 1968 obligational authority was \$28,006,000 (for which we did not receive funding until January 1968), the DHEW cost reduction program, money put in reserve, and a forced carry-over of funds resulted in a real obligational authority of some \$22,000,000. Early in the fiscal year the Department initiated a program to delay expenditures in grants and contracts. As a result, NLM obligations for these items during the period December through April was limited to \$2.7 million; \$5.2 million remained unobligated on May 1. At that point, all grant and contract money was frozen. NLM, fortunately, was exempt from an NIH-wide reduction in funds caught in the freeze and, as a result, we were able to fund all our planned projects.

The Library's 1969 President's Budget included \$23,316,000 of which \$19.1 million was new obligational authority and \$4,171,000 was carried forward from 1968. We have just received the news that the House Subcommittee Report has been released and the Library has had \$2,023,000 cut from its request. This is a cut of over 10% in our new obligational authority and will result in a total obligational level which is 24% below our 1968 level. The money for the new computer system and regional medical libraries are not affected by this reduction.

NLM planning figures for FY 1970 were prepared and submitted at two levels: \$37,900,000 as the desired level, and \$28,500,000 as the stringent level. NIH received a ceiling of \$1.7 billion and in spreading this figure allowed the Library \$28,300,000.

The firm of O'Connor and Kilham has completed a study on the question of the geographic location of the National Medical Audiovisual Center. They concluded that: (1) NMAC would be more advantageously located in Bethesda; (2) the cost of expanding the present facility would be approximately the same as the cost of relocating in Bethesda; and (3) CDC could save approximately \$600,000 by converting NMAC space rather than building new space. The FY 1969 budget contains no money for the design of new facilities. The FY 1970 preliminary budget includes \$900,000 for this purpose.

The Director, in discussing regional medical libraries, reported that test scores for 15 "reservoir" libraries for a Document Delivery Test have been developed by the Institute for Advancement of Medical Communication under contract to NLM. These scores are related to the average time required by a library to provide documents for a selected citation sample. Dr. Cummings suggested that additional medical libraries and consortia of libraries be tested and that such data be considered in evaluation of proposals for regional library services.

Dr. Cummings also announced that John B. Blake, Ph.D., Chief of the History of Medicine Division, and Charles A. Roos, Head of the Reference Section, received the Ida and George Eliot Award for their work in editing Medical Reference Works, 1679-1966, A Selected Bibliography.

#### MEDLARS OPERATIONAL WORKLOAD - DEVELOPMENT OF USER CONTROLS \*

Dr. Joseph Leiter, NLM Associate Director for Library Operations, gave a report on the current status of MEDLARS operations with particular emphasis on demand searches, detailing the steps taken to ensure adequate performance:

1. Controls on the development of new bibliographies have been established and a further development of search capabilities at MEDLARS Centers has been halted.
2. Backup search processing capability has been established at the Ohio State MEDLARS Center to relieve temporary loads on the NLM computer.
3. A limit on the size of the MEDLARS file routinely searched has been established.

In addition, the following steps are being considered, and the advice of the Board is sought:

1. The development of most stringent definitions for qualified users, both foreign and domestic, who would be eligible to request MEDLARS searches.
2. The establishment of a user charge for MEDLARS services with the objective for providing a basis for reducing the number of casual requests for such services, and for the additional purpose of providing a means for partial support of the decentralized MEDLARS Center services in the face of shrinking budgetary support.

User charges could be imposed, Dr. Leiter explained either with current NLM authorities (in which case funds received from non-Federal sources would have to be turned over to the Treasury), or by obtaining special legislative authority to set up a revolving fund (NLM would retain funds received).

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\* Board Action - See Appendix A



After extensive discussion by the Board of user charges for MEDLARS services, in which the consensus of opinion was against the institution of any user charges except as a management tool to control workloads, the following policy guideline was adopted:

The Board of Regents reaffirms its position that the National Library of Medicine should continue to provide its services in the tradition of the "Free Library" without cost to qualified users. The Board considers the provision of bibliographic services, whether furnished in the traditional manner by a reference librarian or through the means of a computer based MEDLARS file, to be a part of the free library services to meet the health needs of the nation. In order that the National Library of Medicine may offer maximum service to qualified users on a timely basis, the Board recommends that the Director establish necessary controls to insure that MEDLARS facilities are effectively used. The Director may use such techniques of management control as he deems necessary to effectively direct the program of MEDLARS.

#### REPORT OF THE HISTORY OF MEDICINE DIVISION

Dr. John B. Blake, Chief, characterized the functions of the Division as a "library within a library" with acquisition, cataloging, reference, reader service, interlibrary loan, preservation, bibliographic publication, and research activities. Dr. Blake described to the Board a selection of recent acquisitions which were on display. He also reviewed the recent bibliographic publications issued by the History of Medicine Division: A Catalogue of Sixteenth Century Printed Books in the National Library of Medicine; and the annual Bibliography of the History of Medicine.

#### EXTRAMURAL PROGRAMS 1/ 2/ 3/

##### Extramural Programs Staff Changes

Mr. David F. Kefauver, Associate Director for Extramural Programs, introduced Mrs. Ann Sabin as the new Committee Management Assistant. He announced that Mr. John Spain, Grants and Contracts Management Officer would be leaving the Extramural Programs and that Mr. Lawrence Coffin would replace him.

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- 1/ Proceedings of meetings are restricted unless cleared by the Office of the Director, National Institutes of Health. The restriction relates to all material submitted for discussion at the meetings, the agenda for the meetings, the supplemental material, and all other official documents.
  - 2/ For the record, it is noted that members absent themselves from the meeting room when the Committee has under individual discussion applications (a) from their respective institutions, (b) in which a conflict of interest might occur.
  - 3/ The Board of Regents, when considering the Extramural Programs of the NLM, also consists of the Board of Regents Advisory Council for Extramural Programs and National Medical Libraries Assistance Advisory Board and concurrently discharges the responsibilities of all three bodies.

Council Operating Procedures

The Board reviewed and reaffirmed the Guidelines for Negotiated Adjustments by Staff in Time or Amount of Grant Award.

Review of Applications Needing Special  
Consideration by the Board of Regents Subcommittee  
For Extramural Programs

The Subcommittee met with the Extramural staff on June 19, 1968, to discuss certain research, training, medical library resource, regional medical library, and construction grant applications which required special consideration, such as those applications requesting more than \$50,000 per year.

Consideration of Pending Applications

The Board of Regents acting concurrently as the Board of Regents Advisory Council for Extramural Programs and as the National Medical Libraries Assistance Advisory Board, reviewed the following grant applications:

Research Grants	Reviewed*	26	\$	512,227
	Approved*	17		329,475
Training Grants	Reviewed	4		215,027
	Approved	2		87,799
Resource Grants	Reviewed	31		
	Approved	29		
	Deferred	1		
	Disapproved	1		
Construction Grants	Reviewed	4 totalling		4,629,507
	Approved	3 totalling		4,228,869
	Disapproved	1		
Regional Medical Library Grants	Reviewed	2 totalling		303,014
	Approved	1 totalling		100,000
	Deferred	1		

Approval was recommended for the following library construction grant applications:

1 JO6 LM 00374-01	University of Oklahoma Oklahoma City, Oklahoma
1 JO6 LM 00416-01	University of Colorado Medical Center Denver, Colorado
1 JO6 LM 00418-01 (J)	Albany Medical College of Union University Albany, New York

\* This does not include 2 dually assigned applications where NLM is secondary in the amount of \$93,301.

Dr. Cummings said that it would be his recommendation to Dr. Shannon to transfer the high priority construction grants that have been through the review mechanism and recommended for approval to other programs for possible funding.

#### REPORT ON COPYRIGHT MATTERS

Mr. Scott Adams, NLM Deputy Director, recounted to the Board recent legislative developments concerning copyright. After extensive hearings, the House in April 1967, passed a revised bill, HR 2512. The Senate has held hearings on the companion bill, S 597, but the bill has yet to pass.

The National Library of Medicine has had two major areas of interest in this legislation: the question of "fair use" as it applies to Library photocopying, and the question of computer-based systems.

Mr. Adams also brought the Board up-to-date on the Williams and Wilkins suit against the Federal Government. On February 27, 1968, the publishing firm of Williams and Wilkins filed a petition in the U.S. Court of Claims against the Government "through its Department of Health, Education, and Welfare, including but not limited to the Library of the National Institutes of Health and the National Library of Medicine," on seven specific counts alleging infringement of the Copyright Act, and an eighth count requesting permission to amend the petition upon the discovery of further works copies. Within the Department of Justice the suit has been assigned to Mr. Thomas J. Byrnes of the Patent Section. Mr. Byrnes has called on HEW for a response and has entered motions with the Court of Claims requesting: a sixty-one day extension (expiring June 27, 1968); specifics separating charges between the NIH Library and NLM; and dismissal of the eighth count. All motions were granted. Mr. Adams noted that it is doubtful that the case will come to trial within a year.

Dr. James Lieberman, Director of the Library's National Medical Audiovisual Center, briefed the Board on the possible effects of the proposed revision of the Copyright laws on audiovisuals. NMAC is particularly concerned with the revision as it will affect the future extensive use of multi-media in teaching and learning. There is major concern also with the question of property rights involving all medical and health films supported under grant and contract by constituents of DHEW.

#### PROGRESS REPORT ON MEDLARS II PROCUREMENT

Mr. Davis B. McCarn, Deputy Associate Director, Research and Development, reported on the current status of the MEDLARS II procurement. Based on the detailed evaluation of each of the seven bids received, the successful bidder has been selected and a contract signed. The contract, totalling \$2,037,505, was let on June 11, 1968, to Computer Sciences Corporation. The contract covers the design, development, and program support for MEDLARS II, but does not include the computer equipment. The Library (through the General Services Administration) will procure an IBM 360-50 system. The heart of the MEDLARS II software to be furnished by CSC will be a new data management system called Computer System for Medical Information Services (COSMIS).

MEDLARS II will be implemented in three phases. Phase I will be operational by September 1, 1969. It will replace the capabilities then existing in MEDLARS I. These support, with batch processing: Cataloging, citation input, searching, vocabulary (MeSH) maintenance, chemical (ACM) processing, and the output of bibliographies and other publications. Phase I will also augment the MeSH vocabulary, increase file maintenance capability, and increase the automatic aids to the system.

Phase II is scheduled to begin in November 1969 and then to flow into Phase III. In each of these last two phases, some of the capabilities called for may already be available in the preceding phase. Phase II begins on-line support to library functions, such as furnishing a capability to display and update MeSH on-line and permit on-line browsing in the vocabulary. Procurement and holdings data will also be available on-line. Other activities receiving on-line support will be: Cataloging, indexing, citation input, search formulation and sampling, access to stored queries and searching aids, and access to the various thesauri. The total MEDLARS II System will be operational by December 1971, and an evaluation will be made by January 1, 1972.

#### PROGRESS REPORT ON THE BIOMEDICAL COMMUNICATIONS NETWORK \*

Dr. Ruth Davis, NLM Associate Director for Research and Development, reported on recent briefings to Dr. Kidd of the Office of the Scientific Advisor to the President (the Scientific Advisor is also Chairman of the Presidential Working Group on the Network for Knowledge), the Special Assistant to the President for Telecommunications (General O'Connell), the Deputy Under Secretary, DHEW (Mr. Coston), the Assistant Secretary for Health and Scientific Affairs, DHEW (Dr. Lee), and Dr. Shannon of NIH. All of the above have received and are reviewing the NLM Technical Development Plan for the Biomedical Communications Network.

Dr. Davis reported that we have been having discussions with the American College of Cardiology, the Association of American Medical Colleges, and FASEB, concerning the development of material to be broadcast over the network. Related to this, the Library hopes to retrieve about 20 minutes from a two-hour videotape sponsored by the American College of Cardiology and the Scripps Research Foundation. The portion will be broadcast either via the ground ETV system or a NASA satellite for demonstration.

In the area of technical progress, Dr. Davis described the potential services of MEDLARS II in the network, the relationship of the systems design work of the Three National Libraries Task Force on Automation to the network, the establishment of an optical character reader for input, and the progress of NLM's Remote Information Systems Center (RISC).

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\* Board Action - See Appendix B

PROGRESS REPORT ON DEVELOPMENT OF GRAPHIC IMAGE RETRIEVAL SYSTEM

Mr. Samuel Waters, Chief of the Reference Services Division, and Mr. Thomas Bagg of the National Bureau of Standards, described to the Board recent efforts to develop requirements for a retrieval and printout system using a microfilmed store of high-access biomedical journal articles. Use of such a graphic image system would permit more rapid response to interlibrary loan requests and would also reduce damage to the collections stemming from the repetitive filming of bound volumes. The NLM-NBS team established to study the problem has developed a draft of realistic technical specifications for a graphic image system.

After examining the system specifications and the commercial equipment available, the Board discussed with Mr. Waters the advisability of installing a "stripped down" system versus a more elaborate system. The view of the Board was that the procurement of a "stripped down" version of a commercial system was to be preferred.

PROGRESS REPORT ON THE TOXICOLOGY INFORMATION PROGRAM

Dr. Charles Rice, Associate Director for Specialized Information Services, reviewed some of the important Toxicology Information Program objectives: identify and evaluate individuals, organizations, and other resources with competence in and knowledge of toxicology; study the information requirements of individuals and organizations concerned with toxicology; and work toward professionally approved terminology in the field. At present the Program is seeking to negotiate a pilot experiment to encourage a network of information centers in toxicology. The Program also expects to establish a central computer-based system of indexing and accession for information available from the network. Upon the recommendation of the NLM Advisory Committee on Toxicology, the publication of a quarterly Toxicity Bibliography began with the January-March 1968 issue.

Dr. Rice reviewed for the Board the present contracts in force in the Toxicology Information Program. He noted especially two activities to provide assistance in the establishment of referral functions within the Program: the work of the National Referral Center for Science and Technology at the Library of Congress through which they provide to us an inventory of institutional sources of information in toxicology; and the development, under contract, of a roster of individuals who may serve as expert advisors in toxicology.

Dr. Rice emphasized that in the attempt to make maximum use of limited human and monetary resources, it has been necessary to abandon the establishment of large in-house activities and to concentrate on contract work and referral operations.

PROGRESS REPORT ON IMPLEMENTATION OF BOARD  
RECOMMENDATIONS CONCERNING NMAC

Dr. James Lieberman, NLM Associate Director for Audiovisual and Telecommunications and Director of the National Medical Audiovisual Center, reviewed with the Board a written progress report on implementing the recommendations made by

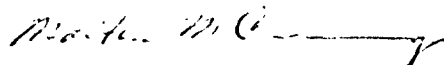
the Board Subcommittee on NMAC, amended and adopted by the Board, March 12, 1968. Among the areas of progress noted by Dr. Lieberman:

1. As a result of exchange visits between NLM-NMAC indexers and catalogers, arrangements are being made to reorient NMAC staff so that material cataloged and indexed there can be included in the NLM system.
2. Several potential approaches to the problem of putting the distribution emphasis on professional audiences have been studied by NMAC. Substantial problems have arisen in connection with each of the proposed solutions: (a) withdrawal of services to other than health professions; (b) charges to newly-formed agencies of DHEW; and (c) charges to users.
3. The phase-over of the Community Medical Television System from NMAC to the participating Atlanta institutions is proceeding. The Emory School of Medicine is supporting one full-time television cameraman and is defraying the salary of a second, pending receipt of grant funds.

ACTIONS TAKEN BY THE BOARD

1. After extensive discussion by the Board in which the consensus of opinion was against the institution of any user charges except as a management tool to control workloads, a policy guideline was adopted. (Appendix A)
2. In the Executive Session a resolution concerning Biomedical Communications Network was adopted. (Appendix B)

Respectfully submitted,



Martin M. Cummings, M.D.  
Executive Secretary to the Board of Regents  
National Library of Medicine

MEDLARS OPERATIONAL WORKLOAD - DEVELOPMENT OF USER CONTROLS

POLICY GUIDELINE

The Board of Regents reaffirms its position that the National Library of Medicine should continue to provide its services in the tradition of the "Free Library" without cost to qualified users. In order that the National Library of Medicine may offer maximum service to qualified users on a timely basis, the Board recommends that the Director establish necessary controls to insure that MEDLARS facilities are effectively used. The Director may use such techniques of management control as he deems necessary to effectively direct the program of MEDLARS.

APPENDIX B

NATIONAL LIBRARY OF MEDICINE

BOARD OF REGENTS

RESOLUTION

BIOMEDICAL COMMUNICATIONS NETWORK

The Board of Regents was pleased to hear from Assistant Secretary Philip Lee his view that the National Library of Medicine will function as the principal information and communications program within the reorganized DHEW. The Board also particularly appreciates his expression of support for the NLM's planning to develop an integrated and comprehensive Biomedical Communications Network (BCN). To gear BCN program planning with realistic budget projections, and to give additional assurance that expensive and time consuming systems planning is accompanied by the fullest opportunity for implementation, the following resolution is offered:

"The Board has been most impressed by the rapid pace of the NLM Research and Development Staff in proceeding with the Biomedical Communications Network, (BCN), as reflected by the excellent briefings on this Network. The Board deeply appreciates the expressed keen interest, support, and enthusiasm of the highest levels of the DHEW for the BCN.

In order not to lose the current momentum towards technical and system planning for the BCN by the NLM, the Board suggests that the highest official levels of the DHEW may wish to become cognizant with and explore several related matters which the Board feels have a profound impact on the prompt and effective fruition of the BCN. The matters concern: first, the development of suitable policy within the Government for



explicitly promulgating the notion of the BCN, and assignment of responsibilities for this; and, second, the development within the medical community, both public and private, of mechanisms for selection of important medical matters and audience sectors which should be of major BCN concern. The Board believes that the DHEW should take the initiative in these matters.

The Board believes it would be desirable and vitally important for the highest officials of the DHEW to involve themselves in these matters. The Board is prepared to assist in this and suggest some appropriate processes and procedures."

NATIONAL LIBRARY OF MEDICINE

RESUME OF BOARD OF REGENTS RECOMMENDATIONS

June 20-21, 1968

RESEARCH & PUBLICATION GRANT APPLICATIONS

Application No., Investigator and Institution	Initial Review Group	FY	Year	Requested	IRG Recommendation	BOARD OF REGENTS Recommendation		
						Approval	Priority	Other
2 R01 IM 00020-03A1 Pings, Vern M. Wayne State University Detroit, Michigan "Relationships of Biomedical Information Services"	BCM	69	03A1	\$ 32,119 33,470 33,750	Disapproval			DIS
2 R01 IM 00073-02 Gulick, Edward V. Wellesley College Wellesley, Massachusetts "Biography of Dr. Peter Parker"	HLS	68	02	683	683	\$ 683		120
2 R01 IM 00422-02 Rees, Alan M. Case Western Reserve University Cleveland, Ohio "Education for Hospital Library Personnel"	MT	68	02	28,481	28,481	28,481		186
2 R01 IM 00486-02 Gilbert, Bentley B. University of Illinois Chicago, Illinois "The British Government and the Nation's Health, 1945-58"	HLS	69	02	20,291 3,875 3,955	20,291 3,875 3,955	20,291 3,875 3,955		110

RESEARCH & PUBLICATION GRANT APPLICATIONS - RESUME OF COUNCIL RECOMMENDATIONS

Application No., Investigator and Institution	Initial Review Group	FY	Year	Requested	IRG Recommendation	BOARD OF REGENTS		
						Approval	Priority	Other
1 R01 LM 00562-01 (Publ) Jacobs, Harry L. Clark University Worcester, Massachusetts "Publication of Stereotaxic Brain Atlas"	BCM	68	01	\$ 22,626	\$ 22,626	\$ 22,626	212	
1 R01 LM NB 00576-01 (Publ) Lindsley, Donald B. University of California Los Angeles, California "Translations in Russian Neurophysiology"	BCM	68	01 02	45,000 15,000	45,000 15,000	45,000 15,000	166	
1 R01 LM 00629-01 (Publ) Boyd, Sara B. American Podiatry Association Washington, D.C. "Index to Podiatric Periodicals"	BCM	69	01	20,239	20,239	20,239	333	
1 R01 LM 00630-01 (Publ) Burnham, Donald L. William Alanson White Psychiatric Foundation Washington, D.C. "30-Year Index, Psychiatry Journal"	BCM	69	01	3,530	3,530	3,530	350	

RESEARCH & PUBLICATION GRANT APPLICATIONS - RESUME OF COUNCIL RECOMMENDATIONS

Application No., Investigator and Institution	Initial Review Group	FY	Year	Requested	IRG Recommendation	BOARD OF REGENTS			
						Approval	Priority	Other	
9 RO1 LM DE 00631-08 (Publ) Campbell, Irene R. University of Cincinnati Cincinnati, Ohio	BCM	69	08	\$ 36,923	\$ 36,923	\$ 36,923	233		
"Bibliography on Fluoridation of Public Water Supplies"			09	37,285	37,285	37,285			
			10	38,871	38,871	38,871			
			11	40,534					
			12	42,279					
			13	44,107					
			14	46,025					
<hr/>									
1 RO1 LM 00632-01 Weed, Robert I. University of Rochester Rochester, New York	NSS	69	01	13,487	13,487			DEF	
"A Programmed Course in Blood Morphology - An Evaluation"			02	10,550	10,550				
			03	13,430	13,430				
<hr/>									
1 RO1 LM 00633-01 (Publ) Kranz, Peter Albert Einstein College of Medicine Bronx, New York	BCM	69	01	16,049	Disapproval			DIS	
"Annotated Bibliography & Content Analysis of Cross-Infection"			02	13,650					
			03	15,500					
<hr/>									
1 RO1 LM NB 00635-01 (Publ) Corson, Samuel A. Ohio State University Research Foundation Columbus, Ohio	BCM	68	01	28,503	19,803	19,803	287		
"Psychophysiology & Psychosomatic Medicine in the USSR"			02	31,511	22,811	22,811			
			03	30,364	21,664	21,664			
			04	33,465					
			05	32,416					
			06	35,619					
			07	34,677					

RESEARCH & PUBLICATION GRANT APPLICATIONS - RESUME OF COUNCIL RECOMMENDATIONS

Application No., Investigator and Institution	Initial Review Group	FY	Year	Requested	IRG Recommendation	BOARD OF REGENTS	
						Approval	Recommendation Priority Other

1 R01 LM NB 00636-01	BCM	68	01	\$ 7,205	\$ 7,205	200
Aita, John A.			02	7,926	7,926	
University of Nebraska Omaha, Nebraska			03	8,798	8,798	

"Neurological Manifestations of  
General Diseases"

1 R01 LM 00637-01 (Publ)	BCM	69	01	10,000	Deferral	DEF
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Schultes, Richard E.  
Harvard University  
Cambridge, Massachusetts  
"Publication of Herbarium Notes  
of Biodynamic Plant Use"

1 R01 LM 00639-01 (Publ)	BCM	69	01	6,780	Disapproval	DIS
Delaney, John P.			02	6,963		

University of Minnesota  
Minneapolis, Minnesota  
"Surgical Source Books"

1 R01 LM 00640-01	BCM	69	01	70,426	Disapproval	DIS
Orr, Richard H.			02	72,539		
Institute for Advancement of Medical Communication			03	76,109		

Philadelphia, Pennsylvania  
"Modelling Communication and  
Library Systems"

RESEARCH & PUBLICATION GRANT APPLICATIONS - RESUME OF COUNCIL RECOMMENDATIONS

Application No., Investigator and Institution	Initial Review Group	FY	Year	Requested	IRG Recommendation	BOARD OF REGENTS		
						Approval	Priority	Other
1 R01 LM 00641-01 Crawford, Susan American Medical Association Chicago, Illinois "Statistical Survey of U.S. Health Science Libraries"	MT	68	01	\$ 24,335	Disapproval	\$ 24,335	150	
			02	16,600		16,600		
			03	17,550		17,550		
			04	10,050		10,050		

1 R01 LM 00642-01 (Pub1) Wilhoit, Randolph C. Texas A&M Research Foundation College Station, Texas "Thermodynamic Data for Compounds of Biological Importance"	BCM	69	01	12,738	Deferral			DEF
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1 R01 LM AI 00643-01 (Pub1) Kamegai, S. Nihon Nettai-Igaku Kyokai Marunouchi 2, Japan "Publication of Progress in Medical Parasitology in Japan, Vol. IV & V"	BCM	69	01	8,529	\$ 8,529	\$ 8,529	187	
			02	8,529	8,529	8,529		

9 R01 LM AI 00644-04 Ashkenaz, Eleanor W. College of Physicians of Philadelphia Philadelphia, Pennsylvania "Influenza, An Annotated Bibliography"	BCM	69	04	18,689	18,689	18,689	288	
			05	20,068	20,068	20,068		
			06	21,584	21,584	21,584		

RESEARCH & PUBLICATION GRANT APPLICATIONS - RESUME OF COUNCIL RECOMMENDATIONS

Application No., Investigator and Institution	Initial Review Group	FY	Year	Requested	IRG Recommendation	BOARD OF REGENTS		
						Approval	Priority	Other
1 RO1 LM 00645-01 Gillson, Gordon E. Adams State College Alamosa, Colorado "History of Louisiana State Board of Health"	HLS	69	01	\$ 7,500	\$ 7,500	\$ 7,500	220	
1 RO1 LM 00646-01 Breedon, James O. University of Washington Seattle, Washington "States Rights Medicine in the Old South, 1819-1861"	HLS	69	01 02 03	3,720 4,200 3,800	3,720 4,200 3,800	3,720 4,200 3,800	170	
1 RO1 LM 00647-01 Phillips, Harlan B. Individual Long Island, New York "Oral History Project"	NSS	69	01 02 03 04 05	24,000 24,500 25,000 25,500 26,000	24,000 24,500 25,000 25,500 26,000	24,000 24,500 25,000 25,500 26,000	187	
1 RO1 LM 00648-01 Cunningham, Horace H. University of Georgia Athens, Georgia "History of Medicine in Georgia"	HLS	69	01 02 03 04 05	12,453 14,426 17,426 17,426 21,426	Disapproval			DIS
1 RO1 LM 00649-01 Benschoter, Reba A. University of Nebraska Lincoln, Nebraska Evaluation of Self-Teaching Devices in Medicine"	NSS	69	01 02 03	37,921 44,052 46,012	37,921 44,052 46,012	37,921 44,052 46,012	237	

RESEARCH & PUBLICATION GRANT APPLICATIONS - RESUME OF COUNCIL RECOMMENDATIONS

DUAL GRANTS - LM SECONDARY

Application No., Investigator and Institution	Initial Review Group	FY	Year	Requested	IRG Recommendation	BOARD OF REGENTS	
						Approval	Recommendation Priority Other
2 R13 DH LM 00129-05 Scheaffer, C. Gibson Ohio State University Columbus, Ohio "Dental Editors Workshop"	NSS	69	02	\$ 13,744	\$ 13,744	250	
1 R01 NB LM 08252-01 Bliss, James C. Stanford Research Institute Menlo Park, California "Research Toward a Reading System for the Blind"	BCM	69	01 02	79,557 79,400	79,557 79,400	114	



COMPETING RESEARCH AND PUBLICATION GRANTS  
SUMMARY OF COUNCIL RECOMMENDATIONS  
TRADITIONAL PROJECT GRANTS

INSTITUTE OR DIVISION: NATIONAL LIBRARY OF MEDICINE

COUNCIL DATE: JUNE 1968

TYPE OF REQUEST	TOTAL REQUESTED		APPROVED		REDUCED		DISAPPROVED		DEFERRED	
	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT
<u>RESEARCH AND PUBLICATION</u>										
FY 1968										
NEW	5	\$ 127,669	5	\$ 118,969	1	\$ 8,700	0		0	
RENEWAL	2	29,164	2	29,164	0		0		0	
SUPPLEMENT	0		0		0		0		0	
TOTAL	7	156,833	7	148,133	1	8,700	0		0	
FY 1969										
NEW	14	247,372	7	105,439	0		4	\$ 105,708	3	\$ 36,225
RENEWAL	4	108,022	3	75,903	0		1	32,119	0	
SUPPLEMENT	0		0		0		0		0	
TOTAL	18	355,394	10	181,342	0		5	137,827	3	36,225
FY 1970										
NEW	0		0		0		0		0	
RENEWAL	0		0		0		0		0	
SUPPLEMENT	0		0		0		0		0	
TOTAL	0		0		0		0		0	
FY 1971										
NEW	0		0		0		0		0	
RENEWAL	0		0		0		0		0	
SUPPLEMENT	0		0		0		0		0	
TOTAL	0		0		0		0		0	
GRAND TOTAL	25	512,227	17	329,475	1	8,700	5	137,827	3	36,225

NATIONAL LIBRARY OF MEDICINE

RESUME OF BOARD OF REGENTS RECOMMENDATIONS

June 20-21, 1968

TRAINING GRANTS

Grant Number	Program Director & Institution Year, Amt. Req.	Stipend (Direct Costs Only)	Committee Recommendation		Requested Begin. Date Priority	BRACEP Action
			Amt. Recomm.	Stipend		
2 TO1 LM 00102-04 MT	Lasslo, Andrew University of Tennessee Memphis, Tennessee					
	04 \$ 65,395	\$ 34,550	\$ 65,395	\$ 34,550	7/1/69	APPROVAL
	05 66,950	34,550	66,950	24,550	163	
	06 68,450	34,550	68,450	34,550		
	07 69,950	34,550				
	08 70,950	34,550				
	09 71,950	34,550				
	10 72,950	34,550				

1 TO1 LM 00128-01  
HIS

Wilson, Leonard G.  
University of Minnesota  
Minneapolis, Minnesota

01	22,404	13,300	24,404	13,300	7/1/69	APPROVAL
02	30,622	20,500	30,622	20,500	190	
03	30,345	18,600	30,345	18,600		
04	30,500	18,600	30,500	18,600		
05	30,724	18,600	30,724	18,600		

1 TO1 LM 00130-01  
MT

Hodge, Gerald P.  
University of Michigan  
Ann Arbor, Michigan

01	31,130	19,200			7/1/68	DEFERRAL
02	28,580	19,200				
03	40,280	26,400				
04	41,180	27,000				
05	41,680	27,600				

TRAINING GRANTS - RESUME OF BOARD RECOMMENDATIONS

<u>Grant Number</u>	<u>Program Director &amp; Institution</u> <u>Year, Amt. Req.</u>	<u>Stipend</u>	<u>Amt. Recomm.</u>	<u>Stipend</u>	<u>Requested</u> <u>Begin. Date</u> <u>Priority</u>	<u>BRACEP</u> <u>Action</u>
1 T01 IM 00131-01 MT	Orr, Richard H. Institute for Advancement of Medical Communication Philadelphia, Pennsylvania					
	01	\$ 96,098	\$ 30,800			
	02	152,879	62,600			
	03	186,466	79,000			
	04	189,085	79,000			
	05	191,023	79,000			
	06	192,176	79,600			
	07	192,420	79,600			
			DEFERRAL		9/1/68	DEFERRAL

SUMMARY OF COUNCIL RECOMMENDATIONS  
GRADUATE TRAINING GRANTS

INSTITUTE OR DIVISION: NATIONAL LIBRARY OF MEDICINE

TYPE OF REQUEST	TOTAL REQUESTED		APPROVED		REDUCED		DISAPPROVED		DEFERRED	
	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT
FY 1968										
NEW	2	\$ 53,534	1	\$22,404	0		0		1	\$ 31,130
RENEWAL	0		0		0		0		0	
SUPPLEMENT	0		0		0		0		0	
TOTAL	2	53,534	1	22,404	0		0		1	31,130
FY 1969										
NEW	1	96,098	0		0		0		1	96,098
RENEWAL	1	65,395	1	65,395	0		0		0	
SUPPLEMENT	0		0		0		0		0	
TOTAL	2	161,493	1	65,395	0		0		1	96,098
FY 1970										
NEW	0		0		0		0		0	
RENEWAL	0		0		0		0		0	
SUPPLEMENT	0		0		0		0		0	
TOTAL	0		0		0		0		0	
FY 1971										
NEW	0		0		0		0		0	
RENEWAL	0		0		0		0		0	
SUPPLEMENT	0		0		0		0		0	
TOTAL	0		0		0		0		0	
GRAND TOTAL	4	215,027	2	87,799	0		0		2	127,228

NATIONAL LIBRARY OF MEDICINE  
RESUME OF BOARD OF REGENTS RECOMMENDATIONS  
June 20-21, 1968

Resource Grants

<u>APPLICATION NO.</u> <u>GO1 - LM -</u>	<u>INSTITUTION - ADDRESS</u>	<u>RECOMMENDATION OR ENTITLEMENT</u>	<u>PRIORITY</u>
00588-01	Rhode Island Medical Society Providence, Rhode Island	\$ 5,279	350
00601-01	St. Vincent's Medical Center of Richmond Staten Island, New York	4,477	242
00614-01	Winnebago County Medical Library Rockford, Illinois	1,604	358
00621-01	University Hospital Augusta, Georgia	3,099	242
00622-01A1	Westmoreland Hospital Association Greensburg, Pennsylvania	3,500	217
00623-01	Institute for Psychoanalysis Chicago, Illinois	11,137	392
00624-01	Duquesne University Pittsburgh, Pennsylvania	6,169	208
00625-01	Thayer Hospital Waterville, Maine	3,559	208
00626-01	Leahi Hospital Honolulu, Hawaii	2,861	208
00627-01	Latrobe Area Hospital School of Nursing Latrobe, Pennsylvania	2,300	283
00650-01	Nassau County Department of Health Mineola, New York	7,761	325
00651-01	University of Southern California Institute for the Study of Retirement and Aging Los Angeles, California	DEFERRAL	
00652-01	Columbia Hospital of Richland County Columbia, South Carolina	1,901	267

Resource Grants

<u>APPLICATION NO.</u> <u>GO1 - LM -</u>	<u>INSTITUTION - ADDRESS</u>	<u>RECOMMENDATION OR ENTITLEMENT</u>	<u>PRIORITY</u>
00653-01	State Home and Training School Wheat Ridge, Colorado	\$ 2,999	283
00654-01	Central State Hospital Louisville, Kentucky	1,729	308
00655-01	Springfield Hospital Springfield, Massachusetts	5,904	192
00656-01	Greenpoint Hospital Brooklyn, New York	5,133	250
00657-01	Children's Hospital of Philadelphia Philadelphia, Pennsylvania	3,886	218
00658-01	St. Luke's Hospital Saginaw, Michigan	3,241	275
00659-01	Saint Joseph Hospital Burbank, California	6,369	267
00660-01	San Mateo County Department of Public Health and Welfare San Mateo, California	6,396	217
00661-01	St. Luke's Hospital Milwaukee, Wisconsin	4,119	233
00662-01	Hollywood Presbyterian Hospital Los Angeles, California	5,353	317
00663-01	University of Colorado School of Pharmacy Boulder, Colorado	1,613	227
00664-01	Oregon Regional Primate Research Center Beaverton, Oregon	7,697	183
00665-01	Lovelace Foundation for Medical Education and Research Albuquerque, New Mexico	19,946	183
00667-01	Hawaii State Hospital Kaneohe, Hawaii	1,017	242

Resource Grants

<u>APPLICATION NO.</u> <u>GO1 - LM -</u>	<u>INSTITUTION - ADDRESS</u>	<u>RECOMMENDATION</u> <u>OR ENTITLEMENT</u>	<u>PRIORITY</u>
00668-01	St. Joseph Hospital Orange, California	\$ 5,797	267
00669-01	M.D. Anderson Hospital and Tumor Institute Houston, Texas	20,623	200
00670-01	City Hospital Center at Elmhurst Elmhurst, New York	9,035	225
00671-01	American River Hospital Carmichael, California	Disapproval	

NATIONAL LIBRARY OF MEDICINE

RESUME OF CONSTRUCTION GRANT APPLICATIONS

Reviewed by Board of Regents

June 20-21, 1968

<u>APPLICATION NUMBER</u>	<u>INSTITUTION</u>	<u>RECOMMENDATION &amp; PRIORITY</u>
1 JO6 LM 00374-01	University of Oklahoma Oklahoma City, Oklahoma	\$ 1,201,059 136
1 JO6 LM 00416-01	University of Colorado Medical Center Denver, Colorado	1,552,810 127
1 JO6 LM 00418-01 (J)	Albany Medical College of Union University Albany, New York	1,475,000 167
1 JO6 LM 00425-01	Michael Reese Hospital and Medical Center Chicago, Illinois	Disapproval



NATIONAL LIBRARY OF MEDICINE

RESUME OF REGIONAL MEDICAL LIBRARY GRANT APPLICATIONS

REVIEWED BY BOARD OF REGENTS

June 20-21, 1968

<u>APPLICATION NO.</u>	<u>INSTITUTION</u>	<u>RECOMMENDATION</u>	<u>PRIORITY</u>	<u>BOARD RECOMMENDATION APPROVED AMOUNT</u>
1 GO4 LM 00628-01	Wayne State University Detroit, Michigan	\$ 127,700-01 206,000-02 210,000-03 210,000-04 210,000-05	164	\$ 100,000-01 100,000-02 100,000-03
1 GO4 LM 00672-01	University of Alabama Medical Center Birmingham, Alabama	DEFERRAL		DEFERRAL

AGENDA

Thirty-first Meeting of the  
BOARD OF REGENTS  
National Library of Medicine  
9:00 a.m., November 25-26, 1968

- I. CALL TO ORDER AND INTRODUCTORY REMARKS Dr. Stewart Wolf
- II. CONSIDERATION OF MINUTES OF LAST MEETING TAB I Dr. Stewart Wolf  
(orange book)
- III. DATES OF FUTURE MEETING Dr. Stewart Wolf  
1969 Calendar in all books  
Next Meeting - March 24-25, 1969  
Subsequent Meeting - June 19-20, 1969  
Selection of Meeting Date - November 1969  
Possible Dates: 17-18, (20-21), 24-25  
Date circled is one preferred
- IV. REMARKS BY THE DIRECTOR, NIH Dr. Robert Marston
- V. REPORT OF THE DIRECTOR, NLM TAB III Dr. Martin Cummings
- VI. ADMINISTRATIVE MANAGEMENT REPORT TAB IV Mr. George Russell
- VII. NEUROSCIENCES STUDY PLAN Dr. Robert Livingston  
a. Film Showing  
b. Discussion
- LUNCH
- VIII. REPORT OF THE ASSOCIATE DIRECTOR, EP Mr. David Kefauver  
DRG Administrative Report TAB I, Green Book  
Volume I
- CONSIDERATION OF PENDING APPLICATIONS Mr. David Kefauver
- A. CONSTRUCTION GRANTS TAB II  
(Green Book)
- B. REGIONAL GRANTS Tan Book
- C. RESOURCE GRANTS TAB I  
(Grey Book)
- D. RESEARCH AND PUBLICATIONS GRANTS TAB II
- E. TRAINING GRANTS TAB III

ADJOURNMENT

DINNER (DUTCH TREAT) - Walter Reed Army Medical Center Officers  
Open Mess

Bus departs Library 6:30 - Stopping at the Governor's House, Chevy Chase  
Motor Lodge and Bethesda Motor Hotel enroute  
Cocktails 7:00 p.m. Dinner 8:00 p.m.

GUEST SPEAKER - DR. WILLIAM B. BEAN - Subject: "Walter Reed: Sketches  
Toward a Life"

RECONVENE - 9:00 a.m. - November 26, 1968

- |   |                     |   |
|---|---------------------|---|
| IX. THE BIOMEDICAL COMMUNICATIONS NETWORK AND<br>THE LISTER HILL NATIONAL CENTER FOR BIOMEDICAL<br>COMMUNICATIONS | TAB V (orange book) | Mr. Bruno Augenstein<br>Mr. Alfred Zipf<br>Dr. Ruth Davis |
| X. MEDLARS II STATUS REPORT   | TAB VI              | Mr. Alfred Asch   |
| XI. TOXICOLOGY INFORMATION PROGRAM  | TAB VII             | Dr. Charles Rice  |
| XII. REPORT ON MESH ACTIVITIES  | TAB VIII            | Dr. Norman Shumway  |
| XIII. EXECUTIVE SESSION   |                     | Dr. Stewart Wolf  |

NATIONAL LIBRARY OF MEDICINE  
BOARD OF REGENTS

November 25-26, 1968

Lt. General L. D. Heaton, M.C.  
The Surgeon General  
Department of the Army  
(ex officio)

Dr. Harve J. Carlson  
Div. Dir. for Biol. & Med. Sciences  
National Science Foundation  
(ex officio)

Lt. General Kenneth E. Pletcher, M.C.  
The Surgeon General  
Department of the Air Force  
(ex officio)

Dr. Kathryn M. Smith (70)  
D , School of Nursing  
University of Colorado  
Denver, Colorado

Dr. Robert H. Ebert (71)  
Dean, Harvard Medical School  
Boston, Massachusetts

Mr. Bruno W. Augenstein (71)  
Vice President for Research  
Rand Corporation  
Santa Monica, California

Dr. Max Michael, Jr. (72)  
Executive Director  
Jacksonville Hospitals Educational  
Program  
Duvall Medical Center  
2000 Jefferson Street  
Jacksonville, Florida

Vice Admiral Robert B. Brown, M.C.  
The Surgeon General  
Department of the Navy  
(ex officio)

Dr. L. Quincy Mumford  
The Librarian of Congress  
(ex officio)

Dr. George W. Teuscher (72)  
Dean, Dental School  
Northwestern University  
311 East Chicago Avenue  
Chicago, Illinois

Dr. H. Martin Engle  
Chief Medical Director  
The Veterans Administration  
(ex officio)

Dr. William B. Bean (69)  
Professor and Chairman  
Department of Internal Medicine  
Univ. of Iowa College of Medicine  
Iowa City, Iowa

Dr. Frederick H. Wagman (71)  
Director  
University of Michigan Library  
Ann Arbor, Michigan

Mr. Alfred R. Zipf (70)  
Executive Vice President  
Bank of America  
San Francisco, California

Dr. William G. Anlyan (72)  
Dean, School of Medicine  
Duke University  
Durham, North Carolina

Deputy Director,  
NLM  
(Mr. Adams)

Director,  
NLM  
(Dr. Cummings)

Chairman  
Bd. of Regents  
(Dr. Wolf)  
(69)

Assistant  
Secretary for  
Health and  
Scientific  
Affairs  
(Dr. Lee)

Director,  
NIH  
(Dr. Marston)

BOARD OF REGENTS, NATIONAL LIBRARY OF MEDICINE

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6/28/68

THE BOARD OF REGENTS  
of the  
NATIONAL LIBRARY OF MEDICINE

MINUTES OF THE 31ST MEETING

November 25-26, 1968 - Bethesda, Maryland

MEMBERS PRESENT: Dr. William G. Anlyan, Mr. Bruno W. Augenstein, Dr. William B. Bean,  
Dr. Harve J. Carlson, Dr. Robert H. Ebert, Dr. Max Michael, Jr.,  
Dr. L. Quincy Mumford, Dr. George W. Teuscher, Dr. Frederick H. Wagman,  
Dr. Stewart G. Wolf, Jr., Mr. Alfred R. Zipf

MEMBERS ABSENT: Dr. Kathryn M. Smith, Dr. William H. Stewart

ALTERNATES: Captain John J. Downey, USN, represented Vice Admiral Brown, USN,  
both days.

Dr. Thomas C. Chalmers represented Dr. Engle the first day.  
Dr. Harold Schoolman represented Dr. Engle the second day.

Colonel William G. Dunnington, USA, represented Lt. General  
L.D. Heaton, USA, both days.

Colonel Gerrit Hekhuis, USAF, represented Lt. General Kenneth E.  
Pletcher, USAF, both days.

GUESTS: Dr. Robert Marston, Director, National Institutes of Health

Dr. Edgar Bering, Jr., Special Assistant for Program Analysis,  
NINDB, NIH

Dr. Ralph P. Christenson, Director of Medical Education, Sacred  
Heart Hospital, Eugene, Oregon

Dr. Fred Cole, President, Council on Library Resources, Inc.

Mr. Stanley Dube, Division of Dental Health, Bureau of Health  
Manpower, PHS

Dr. Robert Livingston, Chairman, Department of Neurosciences,  
University of California, San Diego, California

Dr. Edward MacNichol, Jr., Director, NINDB, NIH

Mr. John Sherrod, Director, National Agricultural Library

Mr. Ronald MacDonald, Division of Research Facilities and Resources, NIH

Mrs. Marjorie Wagner, Division of Dental Health, Bureau of Health  
Manpower, PHS

STAFF:

Dr. Martin M. Cummings, Mr. Scott Adams, Mr. Alfred Asch,  
 Dr. C. A. Bachrach, Dr. John Blake, Dr. Jeanne Brand,  
 Mr. Huly Bray, Mr. Art Broering, Mr. Ray Brown, Mr. William  
 Caldwell, Mr. Ken Carney, Dr. James Cassedy, Mr. Peter Clepper,  
 Mr. Larry Coffin, Miss Mary Corning, Dr. Ruth Davis,  
 Dr. Malcolm Ferguson, Mr. Herbert Fockler, Mr. Joseph Foley,  
 Mrs. Louise Gamage, Miss Fran Hasemeier, Mr. James Hill,  
 Dr. Ann Kaufman, Mr. David Kefauver, Mr. F. W. Lancaster,  
 Dr. Joseph Leiter, Dr. James Lieberman, Mr. Davis McCarn,  
 Dr. G. Burroughs Mider, Miss Marilyn Miller, Dr. Leon Niemiec,  
 Mrs. Rita Pusey, Dr. Charles Rice, Mr. George Russell,  
 Mrs. Ann Sabin, Miss E. Winifred Sewell, Dr. Norman Shumway,  
 Mr. Stanley Smith, Mr. Michael Springer, Mrs. Barbara Sternick,  
 Mr. Ronald Taylor, Mr. Zane Thornton, Mr. John C. Walden,  
 Mr. Samuel Waters, Mr. Alfred Weissberg.

STAFF MEMBERS INTRODUCED

Dr. Cummings introduced several new NLM staff members or individuals with new assignments within NLM.

1. Mr. Huly Bray, Public Information Officer.
2. Mr. Samuel Waters, Acting Deputy Associate Director for Library Operations.
3. Dr. James H. Cassedy, History of Medicine Division.
4. Mr. M. Zane Thornton, Head, Communications and Electronic Engineering Group, R&D.
5. Mr. William Caldwell, Deputy Chief, Bibliographic Services Division.

JUNE 1968 MINUTES APPROVED, FORTHCOMING MEETINGS SCHEDULED

The minutes of the June 20-21, 1968 meeting were approved. The dates of March 24-25, 1969 and June 19-20, 1969 were reaffirmed. November 20-21, 1969 were tentatively selected as the dates for the third meeting in 1969.

REMARKS BY THE DIRECTOR, NIH

Dr. Marston reviewed preliminary plans for future organization and administration of NIH activities. Since April 1968, when an "expanded NIH" was created from NIH, NLM and the Bureau of Health Manpower, considerable staff work has been undertaken to determine how best to blend together the administration of research, educational and communication programs. This work is now under review, and resulting organization charts and documents are expected to be ready by mid-January 1969. In general, it is intended to undertake as little organizational change as possible consonant with the mandate to bring together, in a more efficient and purposeful fashion, the major components of the health sciences segment of DHEW. These plans recognize the fact that, historically, organizationally and in publics served, NLM is in a special situation, having very broad responsibilities beyond NIH and DHEW areas of interest. On the other hand, NIH is likely to be able to perform more effectively because the three areas of biomedical activity have been brought together. It is also expected that the Library will now be able to help in the communication functions of NIH more broadly than was possible in the past.

Turning to the substantive problems of NIH, Dr. Marston noted that over the last two years there has been a very marked leveling off in dollar support of medical research activities. The increased responsibility of the Federal Government in medical education as underscored by the Health Professions Education and Assistance Act and the Health Manpower legislation, is likely to have a pronounced effect on all NIH activities, including NLM, which in recent years has been broadening the definition of its role. Dr. Marston noted that Policy decisions regarding support of research, education and communications can have a great impact on medical education across the country. Emphasis will be on maintaining research competence already built up, while at the same time providing support to development of educational programs.

With regard to the Lister Hill National Center for Biomedical Communications, Dr. Marston stated that the Biomedical Communications Network has high national visibility and that NLM has been identified as the Federal focal point of a medical communications network. He touched on the need for the early involvement of those with substantive inputs and requirements for the educational and informational resources processed by such a network.

REPORT OF THE DIRECTOR, NLM

Dr. Cummings reviewed the recommendations of three recent reports concerned with the development of national information systems:

1. The National Advisory Commission on Libraries has recommended establishment of a permanent National Commission on Libraries and Information Science; strengthening of the Library of Congress as the National Library and establishing a Board of Advisors based on the model of NLM's Board of Regents; establishment of a Federal Institute of Library and Information Science as a research center; and increased library support from the Office of Education and state library agencies.
2. The principal recommendation of the Systems Development Corporation report to COSATI was the identification of a single capping agency to monitor Federal information and library programs. This concept



has not been accepted, but the other elements of the SDC report have created general awareness of the need for overall review of departmental budgets in the information handling area and for further effort in achieving cooperation, networking, compatibility and standardization. It calls for the delegated agency concept such as is implied in the Lister Hill National Center for Biomedical Communications.

3. The principal recommendation of the National Academy of Science SATCOM report is the need for an increased sharing of responsibilities between Federal and private programs for information handling. It was recommended that wherever possible, Government programs should be conducted through private societies and institutions. These organizations will need, however, to develop increased expertise.

The status of the Library's copyright suit with Williams & Wilkins was reviewed. A petition, filed in the U.S. Court of Claims, named the Department of Health, Education and Welfare as infringing organization and specifically identified the National Library of Medicine and the National Institutes of Health Library as parties to the infringement. The Government's defense is essentially a denial of each count on the grounds that it has the right to copy any document reporting on research supported by public funds. Another important element in the defense is the "Fair Use" issue -- the agreement that has long existed between the publishing industry and the library community which in essence states that a single copy of any article may be supplied for scholarly or research purposes. The case will be held before an examiner at an undetermined date, and it is likely to take two to three years for resolution. There is some indication that the attitude of Williams & Wilkins does not represent the opinion of the American Book Publishers Council, or indeed of the publishing industry in general.

In reporting on the recent work of the National Libraries Task Force, Dr. Cummings mentioned significant progress in several areas of cooperation:

1. Compatibility in machine-readable cataloging data;
2. Compatibility in classification and subject headings; and
3. Development of a national serials data program.

Progress has been particularly evident in the first two of these tasks. He expressed reservations on the direction of task 3.

Dr. Cummings reported on one element of NLM's international program, support for establishment of a Pan American Health Organization (PAHO) regional medical library in Sao Paulo, Brazil, to service South American countries. This effort is supported by PAHO, the Ministries of Health and Education of Brazil, the Commonwealth Fund, and NLM. A scientific Advisory Committee was established by PAHO in 1968 and Dr. Amador Neghme of Chile has recently been appointed as the first permanent library director.

The Director reported that the Library has followed the recommendation of the Regents' Subcommittee on the National Medical Audiovisual Center and established a Technical Advisory Group to assist Dr. Lieberman on all matters relating to the technical operations of the facility. This group is now beginning a careful review of the technical problems existing at NMAC.

After reviewing 1969 and 1970 budget figures with the Board, the Director stated that the Bureau of the Budget mark-up was expected soon. If cuts were forthcoming, the following priorities would obtain:

1. MEDLARS II commitments must be protected.
2. The small increase requested for NMAC is necessary to maintain operations.
3. Grants programs have been reduced in past years. 87% of the requested amount is required to meet commitments.
4. Program Direction must be maintained at the requested level in order to meet commitments to the NIH central management fund.
5. The Lister Hill Center, Toxicology Program, Library Operations, and Review & Approval would have to absorb any required cuts.

After discussion, the Board concurred in these priorities.

#### ADMINISTRATIVE MANAGEMENT REPORT

Mr. George Russell, Executive Officer, reported that the present NLM building contains 232,000 gross square feet of space and now holds 350 employees, resident scholars, trainees and contractor personnel. It was built for a much smaller staff and operational capacity. At least 22,000 square feet of additional office and support space have been created, mostly captured from stack space. The Extramural Program is occupying 7,000 square feet of rental space in Bethesda, and the National Medical Audiovisual Center occupies 35,000 square feet in Atlanta. Architects are studying the feasibility of providing in a single annex the space requirements for the expanded NLM functions, including the Lister Hill Center and the National Medical Audiovisual Center. There is \$900,000 in the 1970 budget for planning the annex.

NLM's contract activities have expanded from one contract in 1963, 13 in 1966, to 34 in 1968. The dollar volume has grown from \$29,000 to \$3.1 million. The Director of NLM now has the authority to negotiate and sign contracts.

To date, the Revenue and Expenditure Control Act of 1968, passed by the 90th Congress, has resulted in a \$1.1 million reduction in grants from the President's Budget, and a proposed carryover of \$700,000 in grants from 1967 to 1970. In addition, the Library has been asked to place \$162,000 in reserve as a minimum projected saving resulting from personnel hiring restrictions during 1969.

Mr. Russell also reviewed the Library's various successful training activities. In addition to providing postgraduate library training for three associates each year, the Library conducts three 16 week training courses for MEDLARS analysts and provides opportunities for study and training to its own employees. A total of 377 training opportunities were realized by NLM staff in FY 1968. Sixty-one students were given on-the-job training under the President's Youth Opportunity Program in 1968.

The Board expressed its endorsement of the Youth Opportunity Program, expressing a hope that the Library might influence the career goals of young people.

#### NEUROSCIENCES STUDY PLAN

Dr. Robert Livingston, Head, Department of Neurosciences, University of California, San Diego, outlined the philosophy guiding his department, and discussed the development of the neurosciences study plan supported by grants from NLM and NINDB. He emphasized that a radical improvement in medical education is needed to provide greater efficiency for the learner and to facilitate increased teacher effectiveness. This is imperative, in view of the rising expectations for health care throughout the country and the increasing complexity of its delivery. Present-day communications technology must be mobilized in this effort.

The neurosciences, a complicated but exciting frontier, provide an excellent opportunity to explore newer learning concepts and apply modern technologies. At San Diego, self-learning by the students is being emphasized. Successful innovations in the Neurosciences Department can be applied in other parts of the medical school. It is recognized that the physicians of the future must be better trained than the present generation of practitioners in order for them to cope with health and social problems in the future. The Office of Learning Resources of the school, in collaboration with the Neurosciences Department, has developed a specialized learning or tutorial environment ("carrel") in which the medical student can study and learn at his own pace and in a manner best suited to his own characteristics (illustrated with slides and a motion picture). He has access to a wide range of instructional tools: text materials, models, slides, motion pictures, television, oscilloscopes, audiotapes, radiographs. An important aspect of this approach to learning, is that the students work together in the special environment and in effect teach themselves. Traditional instructional methods, e.g., the lecture, will be kept at a minimum. Evaluation of the neurosciences study plan is built into this learning experiment and it is hoped to follow the progress of students after graduation.

The Board expressed its interest in, and support for, this study.

#### EXTRAMURAL PROGRAMS 1/ 2/ 3/

##### Extramural Programs Staff Changes

Mr. David F. Kefauver, Associate Director for Extramural Programs introduced Mr. Peter A. Clepper, Research Grants Officer in the Research and Training Division and Mr. Kenneth G. Carney, Grants and Contracts Management Specialist.

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- 1/ Proceedings of meetings are restricted unless cleared by the Office of the Director, National Institutes of Health. The restriction relates to all material submitted for discussion at the meetings, the agenda for the meetings, the supplemental material, and all other official documents.
  - 2/ For the record, it is noted that members absent themselves from the meeting room when the Committee has under individual discussion applications (a) from their respective institutions, (b) in which a conflict of interest might occur.
  - 3/ The Board of Regents, when considering the Extramural Programs of the NLM, also consists of the Board of Regents Advisory Council for Extramural Programs and National Medical Libraries Assistance Advisory Board and concurrently discharges the responsibilities of all three bodies.

Council Operating Procedures

Reaffirmed by the Board at its June 1968 meeting. We will conform to reviewing these procedures beginning November 1969.

Review of Applications Needing Special  
Consideration by the Board of Regents Subcommittee  
for Extramural Programs

The Subcommittee met with the Extramural staff on November 24, 1968, to discuss certain research, training, medical library resource, regional medical library, and construction grant applications which required special consideration, such as those applications requesting more than \$50,000 per year.

Consideration of Pending Applications

The Board of Regents acting concurrently as the Board of Regents Advisory Council for Extramural Programs and as the National Medical Libraries Assistance Advisory Board, reviewed the following grant applications:

Research Grants	Reviewed*	26	\$ 560,983
	Approved*	14	214,731
	Disapproved	9	244,311
	Deferred	3	56,215
Training Grants	Reviewed	4	382,802
	Approved	2	178,183
	Disapproved	1	56,468
	Deferred	1	148,151
Resource Grants	Reviewed	21	
	Approved	20	
	Disapproved	1	
Construction	Reviewed	6 totalling	10,947,259
	Approved	3 totalling	5,097,000
	Deferred	2	
	Transferred to BHM	1	
Regional Medical Library Grants	Reviewed	5 totalling	1,113,783
	Approved	4 totalling	545,470
	Disapproved	1 totalling	114,517

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\* This does not include 5 dually assigned applications where NLM is secondary, which were reviewed for \$421,320 and 2 which were approved for \$104,223.

Approval was recommended for the following library construction grant applications:

- 1 JO6 LM 00443-01      University of Miami School of Medicine Library  
Miami, Florida
- 1 JO6 LM 00449-01 (J) University of Florida  
J. Hillis Miller Health Center  
Gainesville, Florida
- 1 JO6 IM 00459-01 (J) University of Washington  
Seattle, Washington

Summaries of Board actions on all Extramural Grant Programs are appended to these minutes.

THE BIOMEDICAL COMMUNICATIONS NETWORK AND  
LISTER HILL NATIONAL CENTER FOR BIOMEDICAL COMMUNICATIONS

Mr. Bruno Augenstein and Mr. Alfred Zipf, members of the Board's Subcommittee on Research and Development, presented the Subcommittee's report, stressing the need to study user requirements, to undertake an experimental approach, to explore supplemental sources of funding for the BCN, and to promote user acceptance of the network.

Dr. Ruth Davis discussed the economic parameters of the BCN as a national communications system.

Mr. Augenstein noted that the Biomedical Communications Network (BCN) is the outgrowth of a 10-year series of studies within the Federal Government. Recommendations from the latest studies point to the BCN as a highly relevant model for a national information system. They also recognized that it is the only one far enough along conceptually to be a candidate for development in terms of the involvement of those with substantive input.

A report was given on the August 1968 meeting of the Research and Development Advisory Committee. Points considered were: planning for the BCN and its management, organizational problems, relationships within NLM of BCN activities, surveys to determine user requirements, and progress being made by the contractors working on various aspects of Network development.

Mr. Augenstein suggested that the initial stage of BCN operation ought to be considered a model or prototype, and should relate to several major health interests. Out of experience with this, general consumer needs can be more precisely determined, long term costs developed, and these related to social returns as measured in improved health. The three main functions for the BCN are: identification of the generator of information; identification of the consumers (this will influence network design); and the development of management capability for this information flow.

Two attitudes can be taken by NLM towards BCN development: a passive one in which response is to external pressures; or a more aggressive one, where external pressures are to a considerable extent shaped by NLM.

Mr. Zipf commented that the BCN is an ambitious undertaking and that there will be great competition from other Federal agencies for money to establish a network, particularly if satellites are involved. He urged active salesmanship to launch the BCN as an instrument for the support of medical education and as a means of bringing diagnostic assistance to physicians.

Dr. Davis discussed the economic advantages of a data communication network over the voice circuits currently used by a number of medical centers. She emphasized that the BCN capabilities can be greatly enhanced by tying in to information centers elsewhere, with large computers, and at a cost within NIM resources. The results of a study by the American Telephone and Telegraph Company to determine communications activities in medical schools were discussed. From this, it is hoped to identify those communications programs that can be shared with other institutions through the network.

The general response of the Board in the discussion period was that communications for education should be emphasized and assigned top priority among network components. The need for planned evaluation of the BCN experiment was also expressed.

#### MEDLARS II STATUS REPORT

Mr. Alfred Asch, Chief, Office of Computer and Engineering Services, reviewed the status of the contract with Computer Sciences Corporation. MEDLARS II will be implemented in three phases:

- Level 1: Augmentation of existing capabilities, including augmentation of Medical Subject Headings.
- Level 2: Initial on-line capabilities for Library staff, including indexers, catalogers, searchers, and vocabulary specialists.
- Level 3: A tie-in of MEDLARS II with the Biomedical Communications Network. Limited on-line capability is planned for the second quarter of FY 1972.

The contract was awarded on June 11, 1968. Hardware installation and checkout is scheduled for March-April 1969. Level 1 is expected to be operational in the second quarter of FY 1970. The preliminary overall systems design for Level 1 was completed on October 5, 1968.

#### TOXICOLOGY INFORMATION PROGRAM

Dr. Charles Rice, Associate Director for Specialized Information Services, reviewed his budget and staffing status. It is expected that about 61% of the FY 1970 budget will be allocated to contract activities. The goal of the Toxicology Information Program (TIP) is to become the national focal point for access to information in toxicology. This will be achieved by: evaluating the information requirements of user groups; evaluating and identifying resources with competence in toxicology; terminology development; planning and encouraging

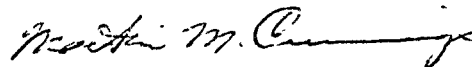
a network of toxicological information centers; establishing a computer-based system using information from this network and ancillary information sources. Present TIP contracts relate to general advisory services, the study of user behavior and needs, compilation of a roster of advisors, preparation of an inventory of information resources, study of communication of toxicology information, and terminology development.

In reviewing the activities of the Drug Literature Program, Dr. Rice pointed out the present limitations of MEDLARS in the handling of drug and chemical information. The Auxiliary Chemical Module, which interfaces with the Chemical Abstracts registry system, has been designed to improve MEDLARS indexing and searching capabilities relating to drugs and chemicals.

#### REPORT ON MeSH ACTIVITIES

Dr. Norman P. Shumway, Bibliographic Services Division, described the history and growth of Medical Subject Headings. The first edition, 1960, contained 4,500 subject headings and 5,000 cross references. There are now approximately 7,500 subject headings and 9,500 cross references. The vocabulary is constantly updated by inputs from NLM staff, including indexers, search analysts and vocabulary specialists; users of MEDLARS and Index Medicus, both scientists and librarians; editors of specialized recurring bibliographies produced from the MEDLARS data base; advisory committees (on epidemiology, behavioral sciences, medical care, autonomic drugs, toxicology and veterinary medicine); and inter-agency committees. The MeSH group is working in close association with a number of outside groups concerned with medical terminology, including the National Libraries Task Force, CIOMS, the Drug Information Association, ICSU/UNESCO Joint Committee on a World Science Information System, the American Cancer Society, the NINDB network, and the NIAMD Nutrition Committee. A very important current activity is the creation of entry vocabularies of specialized medical terms that translate into Medical Subject Headings. The thesaurus of the Parkinson Information Center (5,000 terms) has already been mapped. Only 6% of the Parkinson terms were not mappable to MeSH.

Respectfully submitted,



Martin M. Cummings, M.D.  
Executive Secretary to the Board of Regents  
National Library of Medicine

BOARD OF REGENTS  
NATIONAL LIBRARY OF MEDICINE

MINUTES OF EXECUTIVE SESSION  
November 26, 1968

Doctors BEAN AND WOLF, representatives of the Board to the Inter-Council meeting called by the Director of the National Institutes of Health on September 30, 1968, reported their impressions of the meeting. It was noted that the gathering was large for the purpose of stimulating meaningful dialogue. In the same context, it was concluded desirable to invite the Director, NIH, to attend the Executive Session of the Board of Regents, at the end of its next meeting.

Dr. CUMMINGS reported on the Belmont Conference, discussing with the Board the most recent version of the organization charts for the National Institutes of Health and the Office of the Director, NIH. He stated his satisfaction with the Library's location in the NIH structure, noting that he reported directly to the Director, NIH. He also reminded the Board that it had the responsibility of advising the Assistant Secretary for Health and Scientific Affairs.

Dr. CUMMINGS then highlighted the program considerations involved in the process of formulating the Fiscal Year 1970 budget.

The Board expressed its confidence in the Director's judgment involved in distributing the effects of the Bureau of the Budget's markup (a reduction of \$1,856 million from the Library's request), and its desire to leave further details to the Director.

Mr. KEFAUVER presented a summary of the NIH Task Force Report on Research and Education Facilities organization recently submitted to the Director, NIH for review. All health construction programs, including Medical Library Construction, would be consolidated under a single Division of NIH. It is envisioned that the National Library of Medicine would still defend the budget for library construction and provide technical guidance in the review process. The Board of Regents would maintain its function of final review. Library construction grants would be administered by a unit of the consolidated organization; NLM would surrender a maximum of two positions to the new organization.

Mr. KEFAUVER then reviewed the highlights of the proposal for the revision of the Medical Library Assistance Act, now to be known as the Health Communications Assistance Act. Present and proposed dollar authorization ceilings, in millions, are as follows:



	<u>MLAA</u>	<u>BCAA</u>
Construction	10	25
Training	1	5
Special Scientific Projects	0.5	-
Special Projects	-	0.5
Research	3	5
Resources	3	10
Regional Medical Libraries	2.5	8
Publications	1	2.5

Specific changes in authorization proposed by NLM:

Section 393 - Construction. Language relating to need has been clarified, and language to prohibit awards in the absence of available matching funds is liberalized.

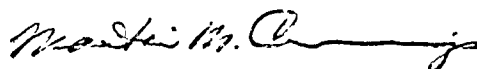
Section 396 - Research. Authority for demonstration grants has been requested.

Section 397 - Resources. The step-down support formula has been eliminated; authority for supporting new libraries requested, and the use of the current operating budget as a basis of calculating amount of award deleted.

Section 398 - Regional Medical Libraries. Authority to support by contract as well as by grant has been requested, the "need" criterion eliminated, and authority for the grantee institution to procure and distribute resources requested.

Section 399 - Publications. Definition of eligible applicants has been broadened, and the three-year limitation on support deleted.

The Executive Session adjourned with Dr. BEAN's offering a resolution of congratulation to the Director and the NLM staff for their preparation for the meeting.



Martin M. Cummings, M. D.  
Executive Secretary, Board of Regents  
National Library of Medicine

Bethesda, Maryland  
November 29, 1968

NATIONAL LIBRARY OF MEDICINE

RESUME OF BOARD OF REGENTS RECOMMENDATIONS

November 25-26, 1968

RESEARCH & PUBLICATION GRANT APPLICATIONS - BY STUDY SECTION

Application No., Investigator and Institution	Initial Review Group	FY	Year	Requested	IRG Recommendation	BOARD OF REGENTS			
						Approval	Priority	Other	
2 R01 LM 00098-04 Rubenstein, Albert H. Northwestern University Evanston, Illinois "Studies of Information- Related Behavior of Researchers"	BCM	69	04	\$ 51,450	Disapproval			DIS	
			05	55,500					
			06	56,200					
			07	55,500					
			08	57,900					
<hr/>									
1 R01 LM 00568-01A1 (Publ) Helpern, Milton Milton Helpern Library of Legal Medicine New York, New York "International Microfilm Journal of Legal Medicine"	BCM	69	01	19,950	\$ 10,000	\$ 12,000	100		
			02	20,470	10,000	12,000			
			03	20,730					
<hr/>									
1 R01 LM 00637-01 (Publ) Schultes, Richard E. Harvard University Cambridge, Massachusetts "Publication of 'Herbarium Notes of Biodynamic Plant Uses'"	BCM	69	01	10,000	10,000	10,000	190		

RESEARCH & PUBLICATION GRANT APPLICATIONS - RESUME OF COUNCIL RECOMMENDATIONS - BY STUDY SECTION

Application No., Investigator and Institution	Initial Review Group	FY	Year	Requested	IRG Recommendation	BOARD OF REGENTS		Other
						Approval	Recommendation Priority	
1 R01 LM 00642-01 (Pub1) Wilhoit, Randolph C. Texas A&M Research Foundation College Station, Texas "Thermodynamic Data for Compounds of Biological Importance"	BCM	69	01	\$ 12,738	Disapproval			DIS
1 R01 LM 00674-01 (Pub1) Freyman, Moye W. University of North Carolina Chapel Hill, North Carolina "International Community Medicine"	BCM	69	01 02	28,325 11,433	Deferral			DEF
9 LM GM 00687-06 (Pub1) McManus, J. F. A. Federation of American Societies for Experimental Biology Bethesda, Maryland "Publication of Conference and Symposia Proceedings"	BCM	69	06 07 08 09 10	48,159 48,159 48,159 48,159 48,159	\$ 30,000 15,000	\$ 30,000 15,000		190
1 R01 LM FR 00688-01 (Pub1) Napier, John R. Smithsonian Institution Washington, D.C. "Primate Nomenclature and Systematics Research"	BCM	69	01 02 03	13,060 16,348 29,593	Disapproval			DIS

RESEARCH & PUBLICATION GRANT APPLICATIONS - RESUME OF COUNCIL RECOMMENDATIONS - BY STUDY SECTION

Application No., Investigator and Institution	Initial Review Group	FY	Year	Requested	IRG Recommendation	BOARD OF REGENTS			
						Approval	Recommendation	Priority	
1 RO1 LM 00689-01 Hyatt, George W. Georgetown University Washington, D.C. "Study of Scientific Communication in Orthopedics"	BCM	69	01 02	\$ 24,817 21,990	\$ 12,000 12,000				DEF
1 RO1 LM 00690-01 (Publ) Cumley, Russell W. Medical Arts Publishing Foundation Houston, Texas "Translation of Wolff: Die Lehre von der Krebskrankheit"	BCM	69	01 02 03 04	84,517 75,197 75,197 50,053	Disapproval				DIS
1 RO1 LM AM 00691-01 (Publ) Schmidt-Nielsen, Bodil M. Case Western Reserve University Cleveland, Ohio "Colloquy on Urea and the Kidney"	BCM	69	01	8,300	Disapproval				DIS
1 RO1 LM 00692-01 (Publ) Freeman, Joseph T. Gerontological Society St. Louis, Missouri "A Bio-Bibliography of Aging Prior to 1900"	BCM	69	01 02 03	15,655 12,662 10,750	Disapproval				DIS

RESEARCH & PUBLICATION GRANT APPLICATIONS - RESUME OF COUNCIL RECOMMENDATIONS - BY STUDY SECTION

Application No., Investigator and Institution	Initial Review Group	FY	Year	Requested	IRG Recommendation	BOARD OF REGENTS		Other
						Approval	Recommendation Priority	
1 R01 LM 00693-01 (Publ) Sollers-Riedel, Helen Individual Washington, D.C. "Synthesis of Literature on Culicidae"	BCM	69	01	\$ 15,890	Deferral			DEF
			02	16,105				
			03	16,785				
			04	17,510				
1 R01 LM 00694-01 (Publ) Reynolds, David V. Stanford Research Institute Menlo Park, California "Translation of Research Articles on Electronarcosis"	BCM	69	01	18,707	Disapproval			DIS
1 R01 LM 00695-01 (Publ) Kerker, Ann E. Purdue Research Foundation Lafayette, Indiana "Veterinary Medicine: Clinical and Research Literature"	BCM	69	01	16,369	\$ 13,569	\$ 13,569	188	
1 R01 LM 00696-01 (Publ) Andersen, Allen G. University of California Davis, California "Engraving Costs for Reference Text"	BCM	69	01	12,000	8,000	\$ 8,000	200	

RESEARCH & PUBLICATION GRANT APPLICATIONS - RESUME OF COUNCIL RECOMMENDATIONS - BY STUDY SECTION

Application No., Investigator and Institution	Initial Review Group	FY	Year	Requested	IRG Recommendation	BOARD OF REGENTS		
						Approval	Recommendation	Priority
1 R01 LM 00697-01 (Pub1) West, Luther S. Northern Michigan University Marquette, Michigan "An Annotated Bibliography of <u>Musca Domestica Linnaeus</u> "	BCM	69	01	\$ 20,783	\$ 20,783	\$ 20,783	233	
1 R01 LM 00698-01 (Pub1) Hoge, Alphonse Richard Instituto Butantan Caixa Sao Paulo, Brasil "Monographic Study of the Pit Vipers of the World"	BCM	69	01	5,400	5,400	5,400	240	
1 R01 LM 00704-01 Salton, Gerald Cornell University Ithaca, New York "Automatic Document Indexing for Medical Literature"	BCM	69	01 02	33,444 33,444	33,444 33,444	33,444 33,444	100	
2 R01 CA 10182-03 Dual LM Cumley, Russell W. Medical Arts Publishing Foundation Houston, Texas "Oncological Word Bank"	BCM	69	03	88,553	88,553	88,553	220	

RESEARCH & PUBLICATION GRANT APPLICATIONS - RESUME OF COUNCIL RECOMMENDATIONS - BY STUDY SECTION

Application No., Investigator and Institution	Initial Review Group	FY	Year	Requested	IRG Recommendation	BOARD OF REGENTS		
						Approval	Recommendation	Other
1 RO1 DH 00157-01 Dual IM Weiss, Marvin B. University of Illinois College of Dentistry Chicago, Illinois "Programmed Self-Learning of Dental Techniques"	CDE	69	01	\$151,465	Disapproval			DIS
			02	134,567				
			03	136,512				
			04	138,554				
			05	140,698				
1 RO1 LM GM 00699-01 Donohew, Robert Lewis University of Kentucky Research Foundation The University of Kentucky Lexington, Kentucky "Stress, Personality and Exposure to Information"	EXP	69	01	21,179	Disapproval			DIS
2 RO1 LM 00068-04 Paul, John R. Yale University School of Medicine New Haven, Connecticut "The History of Poliomyelitis"	HLS	69	01	12,323	\$ 12,323	\$ 12,323	100	
2 RO1 LM 00475-02 Lehmer, Donald J. Dana College Blair, Nebraska "Smallpox Epidemics Among the Missouri Valley Indians"	HLS	69	02	23,900	23,900	23,900	316	

RESEARCH & PUBLICATION GRANT APPLICATIONS - RESUME OF COUNCIL RECOMMENDATIONS - BY STUDY SECTION

Application No., Investigator and Institution	Initial Review Group	FY	Year	Requested	IRG Recommendation	BOARD OF REGENTS		DIS
						Approval	Recommendation Priority	
1 R01 IM 00700-01 Kronick, David A. University of Texas Medical School at San Antonio San Antonio, Texas "Mainstreams of Medicine, A Historical Introduction"	HLS	69	01	\$ 18,705	Disapproval			
1 R01 IM 00701-01 Carlson, Eric T. Cornell University Medical College New York, New York "The Psychiatric Thought of Benjamin Rush"	HLS	69	01	8,025	\$ 8,025	\$ 8,025	166	
			02	8,714	8,714	8,714		
			03	9,405	9,405	9,405		
			04	9,847	9,847	9,847		
			05	10,122	10,122	10,122		
1 R01 LM 00632-01 Weed, Robert I. University of Rochester Rochester, New York "A Programmed Course in Blood Morphology - An Evaluation"	NSS	69	01	13,487	13,487	13,487	100	
			02	10,550	10,550	10,550		
			03	13,430	13,430	13,430		
1 R01 LM PM 00673-01 (Publ) Ham, Thomas H. Case Western Reserve University Cleveland, Ohio "Development and Evaluation of Instructional Materials"	NSS	69	01	12,300	12,300	12,300	220	
			02	19,000	19,000	19,000		
			03	22,000	22,000	22,000		



RESEARCH & PUBLICATION GRANT APPLICATIONS - RESUME OF COUNCIL RECOMMENDATIONS - BY STUDY SECTION

Application No., Investigator and Institution	Initial Review Group	FY	Year	Requested	IRG		BOARD OF REGENTS	
					Recommendation	Approval	Recommendation	Priority
								Other
1 R01 LM 00702-01 Cummings, Richard O. Institute of Nutrition Sciences, School of Public Health and Administrative Medicine New York, New York "Development of Interagency Food and Nutrition Policy"	NSS	69	01	\$ 11,500	\$ 11,500	\$ 11,500	275	
1 R01 HE 12540-01 Dual IM (Publ) Wolf, Stewart G. Oklahoma Medical Research Foundation Oklahoma City, Oklahoma "Synthesis of Interdisciplinary Data on Atherosclerosis"	NSS	69	01	26,300	Disapproval			DIS
1 R01 PM 00043-01 Dual IM Carlson, Loren D. University of California Davis, California "A Survey of Technological Aids"	SSS	69	01	144,332	Disapproval			DIS
1 R01 AI 08904-01 Dual IM Kim, Ke Chung Pennsylvania State University University Park, Pennsylvania "Preparation of a Synoptic Catalog of the Anoplura"	TMP	69	01 02 03	10,670 11,276 7,810	10,670 11,276 7,810	10,670 11,276 7,810	243	

COMPETING RESEARCH AND PUBLICATION GRANTS  
SUMMARY OF COUNCIL RECOMMENDATIONS  
TRADITIONAL PROJECT GRANTS

INSTITUTE OR DIVISION: NATIONAL LIBRARY OF MEDICINE		COUNCIL DATE: NOVEMBER 1968								
TYPE OF REQUEST	TOTAL REQUESTED		APPROVED		REDUCED		DISAPPROVED		DEFERRED	
	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT
FY 1969										
NEW	22	\$425,151	11	\$148,508	3	\$14,750	8	\$192,861	3	\$69,032
RENEWAL	4	135,832	3	66,223	1	18,159	1	51,450	0	
SUPPLEMENT	0		0		0		0		0	
TOTAL	26	560,983	14	214,731	4	32,909	9	244,311	3	69,032
FY 1970										
NEW	0		0		0		0		0	
RENEWAL	0		0		0		0		0	
SUPPLEMENT	0		0		0		0		0	
TOTAL	0		0		0		0		0	
FY 1971										
NEW	0		0		0		0		0	
RENEWAL	0		0		0		0		0	
SUPPLEMENT	0		0		0		0		0	
TOTAL	0		0		0		0		0	
FY 1972										
NEW	0		0		0		0		0	
RENEWAL	0		0		0		0		0	
SUPPLEMENT	0		0		0		0		0	
TOTAL	0		0		0		0		0	
GRAND TOTAL	26	560,983	14	214,731	4	32,909	9	244,311	3	69,032

NATIONAL LIBRARY OF MEDICINE

RESUME OF BOARD OF REGENTS RECOMMENDATIONS

NOVEMBER 25-26, 1968

TRAINING GRANTS

<u>Grant Number</u>	<u>Program Director &amp; Institution</u>	<u>Year, Amt. Req.</u>	<u>Stipend</u>	<u>Amt. Recomm.</u>	<u>Committee Recommendation</u>	<u>Requested Begin. Date</u>	<u>Priority</u>	<u>BRACEP Action</u>
2 TO1 LM 00101-04	Shilling, Charles W. The George Washington University Washington, D.C.							
MT								
			\$ 56,468	\$ 25,800	DISAPPROVAL	7/1/69		DISAPPROVAL
			57,937	25,800				
			56,427	25,800				
		60,327	25,800					
		61,561	25,800					

2 TO1 LM 00109-04

MT

Simonton, Wesley C.  
University of Minnesota  
Minneapolis, Minnesota

04	93,755	29,000	\$ 93,755	\$ 29,000	7/1/69	APPROVAL
05	101,912	35,000	101,912	35,000	243	
06	106,700	35,000	106,700	35,000		
07	109,124	35,000	109,124	35,000		
08	111,694	35,000	111,694	35,000		

2 TO1 LM 00119-04

MT

Hayes, Robert M.  
University of California  
Los Angeles, California

04	84,428	39,400	84,428	39,400	7/1/69	APPROVAL
05	88,650	41,000	88,650	41,000	100	
06	93,900	41,500	93,900	41,500		
07	97,715	42,000	97,715	42,000		
08	101,948	43,000	101,948	43,000		

TRAINING GRANTS - RESUME OF BOARD RECOMMENDATIONS

<u>Grant Number</u>	<u>Program Director &amp; Institution</u>	<u>Year, Amt. Req.</u>	<u>Stipend</u>	<u>Amt. Recomm.</u>	<u>Stipend</u>	<u>Requested</u> <u>Begin. Date</u>	<u>Priority</u>	<u>BRACEP</u> <u>Action</u>
1 T01 LM 00132-01 MT	Boaz, Martha University of Southern California Los Angeles, California							
		01	\$148,151		\$31,200			
		02	205,439		64,000			
		03	210,367		64,000			
		04	215,591		64,000			
		05	221,128		64,000			
		06	226,997		64,000			
		07	233,218		64,000			
				DEFERRAL		7/1/69		DEFERRAL

SUMMARY OF COUNCIL RECOMMENDATIONS  
GRADUATE TRAINING GRANTS

INSTITUTE OR DIVISION: NATIONAL LIBRARY OF MEDICINE

COUNCIL DATE: NOVEMBER 1968

TYPE OF REQUEST	TOTAL REQUESTED		APPROVED		REDUCED		DISAPPROVED		DEFERRED	
	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT
FY 1969										
NEW	1	\$ 148,151	0		0		0		1	\$148,151
RENEWAL	3	234,651	2	\$178,183	0		1	\$56,468	0	
SUPPLEMENT	0		0		0		0		0	
TOTAL	4	382,802	2	178,183	0		1	56,468	1	148,151
FY 1970										
NEW	0		0		0		0		0	
RENEWAL	0		0		0		0		0	
SUPPLEMENT	0		0		0		0		0	
TOTAL	0		0		0		0		0	
FY 1971										
NEW	0		0		0		0		0	
RENEWAL	0		0		0		0		0	
SUPPLEMENT	0		0		0		0		0	
TOTAL	0		0		0		0		0	
FY 1972										
NEW	0		0		0		0		0	
RENEWAL	0		0		0		0		0	
SUPPLEMENT	0		0		0		0		0	
TOTAL	0		0		0		0		0	
GRAND TOTAL	4	382,802	2	178,183	0		1	56,468	1	148,151

NATIONAL LIBRARY OF MEDICINE  
RESUME OF BOARD OF REGENTS RECOMMENDATIONS  
NOVEMBER 25-26, 1968

Resource Grants

<u>APPLICATION No.</u> <u>GO1 - LM -</u>	<u>INSTITUTION - ADDRESS</u>	<u>RECOMMENDATION OR ENTITLEMENT</u>	<u>PRIORITY</u>
00651-01	University of Southern California Gerontology Center Los Angeles, California	\$ 3,693	286
00675-01	Jewish Hospital & Medical Center of Brooklyn Brooklyn, New York	5,964	300
00676-01	Wyckoff Heights Hospital Brooklyn, New York	2,671	364
00677-01	Queensborough Community College Bayside, New York	3,663	323
00678-01	Los Angeles County University of Southern California Medical Center Los Angeles, California	23,481	185
00679-01	Children's Hospital Denver, Colorado	4,278	331
00680-01	St. Joseph's Hospital Carbondale, Pennsylvania	3,459	346
00681-01	Ohio Valley General Hospital Wheeling, West Virginia	1,412	377
00683-01	Tulsa County Medical Society Tulsa, Oklahoma	2,859	223
00684-01	Ohio State University College of Pharmacy Columbus, Ohio	11,321	246
00685-01	St. Joseph Hospital Ottumwa, Iowa	2,307	385
00706-01	Albert Einstein Medical Center Philadelphia, Pennsylvania	6,228	215
00707-01	Pineland Hospital & Training Center Pownal, Maine	1,849	331

Resource Grants

<u>APPLICATION NO.</u> <u>GO1 - LM</u>	<u>INSTITUTION - ADDRESS</u>	<u>RECOMMENDATION</u> <u>OR ENTITLEMENT</u>	<u>PRIORITY</u>
00708-01	New Hanover Memorial Hospital Wilmington, North Carolina	\$ 5,353	292
00709-01	Optometric Center of New York New York, New York	1,581	358
00710-01	Waldemar Medical Research Foundation Woodbury, New York	DISAPPROVAL	
00711-01	University of Wisconsin Milwaukee Milwaukee, Wisconsin	7,827	236
00712-01	Albany College of Pharmacy Union University Albany, New York	2,787	285
00713-01	Northwestern State College of Louisiana School of Nursing Natchitoches, Louisiana	4,190	285
00714-01	New Jersey State Hospital at Trenton Trenton, New Jersey	3,579	454
00715-01	Monmouth Medical Center Long Branch, New Jersey	3,873	285

SPECIAL ACTION

5 GO1 LM 00385-02	University of California San Francisco Medical Center San Francisco, California	APPROVAL	
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NATIONAL LIBRARY OF MEDICINE

RESUME OF CONSTRUCTION GRANT APPLICATIONS

Reviewed by Board of Regents

November 25-26, 1968

<u>APPLICATION NUMBER</u>	<u>INSTITUTION</u>	<u>RECOMMENDATION &amp; PRIORITY</u>
1 JO6 LM 00443-01	University of Miami School of Medicine Library Miami Florida	\$ 1,484,000 127
*1 JO6 LM 00444-01 (J)	University of South Florida Tampa, Hillsborough, Florida	DEFERRAL
1 JO6 LM 00448-01	State University of Iowa Iowa City, Iowa	DEFERRAL
1 JO6 LM 00449-01 (J)	University of Florida J. Hillis Miller Health Center Gainesville, Florida	1,200,000 246
1 JO6 LM 00459-01 (J)	University of Washington Seattle, Washington	2,413,000 196
1 JO6 LM 00466-01 (J)	University of Cincinnati Cincinnati, Ohio	DEFERRAL

\*Transferred to BHM - 11/26/68



NATIONAL LIBRARY OF MEDICINE

RESUME OF REGIONAL MEDICAL LIBRARY GRANT APPLICATIONS

REVIEW BY BOARD OF REGENTS

November 25-26, 1968

<u>APPLICATION NO.</u>	<u>INSTITUTION</u>	<u>REQUESTED</u>	<u>IRG APPROVAL</u>	<u>APPROVAL</u>	<u>BOARD RECOMMENDATION</u>	<u>PRIORITY</u>	<u>OTHER</u>
1 G04 LM 00672-01A1	University of Alabama Medical Center Birmingham, Alabama	\$331,470-01 319,660-02 331,946-03 348,112-04	\$125,000-01 150,000-02 175,000-03 - - - -	\$125,000-01 150,000-02 175,000-03 - - - -		308	
1 G04 LM 00705-01	Vanderbilt University School of Medicine Nashville, Tennessee	246,088-01 340,272-02 408,680-03 465,796-04	125,000-01 150,000-02 175,000-03 - - - -	125,000-01 150,000-02 175,000-03 - - - -		331	
1 G04 LM 00716-01	Duke University School of Medicine Durham, North Carolina	114,517-01 128,103-02 146,772-03 152,601-04 158,059-05	DISAPPROVAL	DISAPPROVAL			DISAPPROVAL
1 G04 LM 00717-01	Emory University Atlanta, Georgia	251,238-01 255,240-02 269,869-03 289,846-04 311,397-05	125,000-01 150,000-02 175,000-03 - - - - - - - -	125,000-01 150,000-02 175,000-03 - - - - - - - -		281	
1 G04 LM 00718-01	University of California Los Angeles, California	170,470-01 233,291-02 280,187-03	170,470-01 233,291-02 280,187-03	170,470-01 233,291-02 280,187-03		155	

# 1969

Manpower and Training

JANUARY						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	<u>31</u>	

Facilities & Resources

FEBRUARY						
S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	<u>13</u>	<u>14</u>	15
16	17	18	19	20	21	22
23	24	25	26	27	28	

Board of Regents

MARCH						
S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	<u>24</u>	<u>25</u>	26	27	28	29
30	31					

Board of Regents

APRIL						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

Facilities & Resources

MAY						
S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	<u>22</u>	<u>23</u>	24
25	26	27	28	29	30	31

Board of Regents

JUNE						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	<u>19</u>	<u>20</u>	21
22	23	24	25	26	27	28
29	30					

Board of Regents

JULY						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

Facilities & Resources

AUGUST						
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

Board of Regents

SEPTEMBER						
S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

Facilities & Resources

OCTOBER						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

Facilities & Resources

NOVEMBER						
S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

Facilities & Resources

DECEMBER						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

Tentative date for Facilities and Resources

# *Senate Hearings*

*Before the Committee on Appropriations*

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## Departments of Labor, and Health, Education, and Welfare Appropriations

H R. 18037

90<sup>th</sup> CONGRESS, SECOND SESSION

*Fiscal Year* 1969

**Part 1—Pages 1 through 1844**

**Tuesday, April 2, 1968, through Wednesday, May 1, 1968**

NATIONAL LIBRARY OF MEDICINE

STATEMENT OF DR. MARTIN M. CUMMINGS, DIRECTOR, NATIONAL LIBRARY OF MEDICINE

ACCOMPANIED BY:

DR. RUTH M. DAVIS, ASSOCIATE DIRECTOR, RESEARCH AND DEVELOPMENT  
 DAVID F. KEFAUVER, ASSOCIATE DIRECTOR, EXTRAMURAL PROGRAMS  
 GEORGE F. RUSSELL, JR., EXECUTIVE OFFICER  
 DR. JAMES A. SHANNON, DIRECTOR, NATIONAL INSTITUTES OF HEALTH  
 DR. WILLIAM H. STEWART, SURGEON GENERAL  
 CHARLES MILLER, CHIEF FINANCE OFFICER  
 JAMES B. CARDWELL, DEPUTY ASSISTANT SECRETARY, BUDGET

APPROPRIATION ESTIMATE

"NATIONAL LIBRARY OF MEDICINE"

"To carry out section 301 of the Act and for expenses, not otherwise provided for, necessary to carry out the National Library of Medicine Act (42 U.S.C. 275), and the Medical Library Assistance Act of 1965 (79 Stat. 1059), ~~[\$19,912,000]~~ \$19,172,000, of which ~~[\$5,250,000]~~ \$1,500,000 shall remain available until the 30, ~~[1969]~~ 1970."

AMOUNTS AVAILABLE FOR OBLIGATION

	1968	1969
Appropriation .....	\$19,912,000	\$19,172,000
Transfer from "Communicable diseases" .....	1,762,000	
Unobligated balance brought forward .....	10,567,462	4,171,000
<b>Cutback required by H J. Res 888:</b>		
Reduction below obligation level in the 1968 President's budget.		
Unobligated balance lapsing .....	-248,000	
Unobligated balance carried forward .....	-1,304,000	
Subtotal .....	-1,552,000	
Reduction because of unanticipated carryover balances. Unobligated balance carried forward .....	-2,867,000	
Total cutback .....	-4,419,000	
Other unobligated balances carried forward .....		-27,000
Total currently authorized for obligation .....	27,822,462	23,316,000
Plus proposed release of reserves for increased pay and postal costs .....	184,000	
Total available for obligation .....	28,006,462	23,316,000
<b>Disposition of cutback:</b>		
To be used for pay and postal costs in this account .....	184,000	
To be returned to the Treasury .....	64,000	
To be carried forward for obligation in 1969 .....	4,171,000	
Total cutback .....	4,419,000	

## OBLIGATIONS BY ACTIVITY

	1968 estimate		1969 estimate		Increase or decrease	
	Posi- tions	Amount	Posi- tions	Amount	Posi- tions	Amount
<b>Grants</b>						
Construction		\$10,000,000		\$1,250,000		-\$8,750,000
Training		1,143,127		1,433,000		+289,873
Special scientific projects		120,000		200,000		+80,000
Research		1,261,000		2,288,000		+1,027,000
Library resources		3,537,392		2,800,000		-737,392
Regional medical libraries		680,128		2,415,000		+1,734,872
Publications support		371,815		300,000		-71,815
<b>Total, grants</b>		<b>17,113,462</b>		<b>10,686,000</b>		<b>-6,427,462</b>
<b>Direct operations</b>						
Library operations	289	5,085,400	295	6,147,000	+6	+1,061,600
Toxicology information	30	1,152,000	34	1,452,000	+4	+300,000
National Medical Audiovisual Center	105	1,762,000	105	1,962,000		+200,000
Research and support contracts		533,000		585,000		+52,000
Review and approval of grants and con- tracts	45	800,600	45	780,000		-20,600
Program direction	67	1,560,000	67	1,704,000		+144,000
<b>Total, direct operations</b>	<b>536</b>	<b>10,893,000</b>	<b>546</b>	<b>12,630,000</b>	<b>+10</b>	<b>+1,737,000</b>
<b>Total obligations</b>	<b>536</b>	<b>28,006,462</b>	<b>546</b>	<b>23,316,000</b>	<b>+10</b>	<b>-4,690,462</b>

## OBLIGATIONS BY OBJECT

	1968 estimate	1969 estimate	Increase decrease
Total number of permanent positions	536	546	+10
Full-time equivalent of all other positions	12	20	+8
Average number of all employees	477	493	+16
<b>Personnel compensation</b>			
Permanent positions	\$4,516,300	\$4,670,000	+\$153,700
Positions other than permanent	123,000	198,300	+75,300
Other personnel compensation	30,500	55,000	+24,500
<b>Total personnel compensation</b>	<b>4,669,800</b>	<b>4,923,300</b>	<b>+253,500</b>
Personnel benefits	373,900	388,700	+14,800
Travel and transportation of persons	217,800	298,000	+80,200
Transportation of things	26,100	25,000	-1,100
Rent, communications, and utilities	334,800	363,000	+28,200
Printing and reproduction	313,200	334,000	+20,800
Other services	163,900	236,000	+72,100
Project contracts	3,280,600	3,516,000	+235,400
Services of other agencies	247,000	326,000	+79,000
Payment to "National Institutes of Health Management Fund"	743,000	653,000	-90,000
Supplies and materials	214,200	378,000	+163,800
Equipment	308,700	1,189,000	+880,300
Grants, subsidies, and contributions	17,113,462	10,686,000	-6,427,462
<b>Total obligations by object</b>	<b>28,006,462</b>	<b>23,316,000</b>	<b>-4,690,462</b>

## SUMMARY OF CHANGES

1968 enacted appropriation	\$19,912,000
Transfer from "Communicable diseases"	1,762,000
Unobligated balance brought forward	10,567,462
Cutback required by H.J. Res 888	
Reduction below obligation level in the 1968 President's budget	-1,552,000
Reduction because of unanticipated carryover balances	-2,867,000
Proposed release of reserves for increased pay and postal costs	184,000
<b>1968 estimated obligations</b>	<b>28,006,462</b>
1969 requested appropriation	19,172,000
Unobligated balance brought forward	4,171,000
Unobligated balance carried forward	-27,000
<b>1969 estimated obligations</b>	<b>23,316,000</b>
<b>Total change</b>	<b>-4,690,462</b>

		Base		Change from base	
		Posi- tions	Amount	Posi- tions	Amount
<b>INCREASES</b>					
<b>A Built in</b>					
1	Annualization of new positions authorized in 1968 .....				\$98, 800
2	Annualization of Pay Act costs (Public Law 90-206 and 90-207) .....				65, 000
3	Pay above stated annual rate in 1968 (260 days in 1968, 261 days in 1969) .....				18, 993
<b>B Program</b>					
1	Training grants .....		\$1, 142, 805		\$289, 873
2	Special scientific project grants .....		120, 000		80, 000
3	Research grants .....		1, 261, 000		1, 027, 000
4	Regional medical library grants .....		680, 128		1, 734, 872
5	Development and partial installation of second-generation medlars .....	126	800, 000	+6	1, 054, 415
6	Toxicology information exchange planning, systems design, and engineering .....	30	1, 152, 000	+4	257, 507
7	National Medical Audiovisual Center program maintenance and expansion .....	105	1, 762, 000		182, 964
8	Research and support contracts .....		533, 000		52, 000
9	Program direction .....	67	1, 560, 000		134, 014
Subtotal, program increases .....				10	4, 812, 645
Total increases .....				10	4, 995, 438
<b>DECREASES</b>					
<b>A Built in</b>					
1	Nonrecurring items of equipment .....				-77, 000
<b>B Program</b>					
1	Construction grants .....		10, 000, 000		-8, 750, 000
2	Library resource grants .....		3, 537, 392		-737, 392
3	Publication support grants .....		371, 815		-71, 815
4	Review and approval of grants and contracts .....	45	800, 600		-49, 693
Total decreases .....					-9, 685, 900
Total net changes requested .....				+10	-4, 690, 462

## EXPLANATION OF CHANGES

*Training grants.*—An increase of \$289,873 will bring the total for this program up to \$1,433,000 composed of \$433,000 carryover of 1968 funds and \$1,000,000 requested in new obligational authority. This will support approximately 24 training grants.

*Special scientific project grants.*—An increase of \$80,000 will bring the total for this program up to \$200,000 consisting of \$100,000 carryover of 1968 funds and \$100,000 requested in new obligational authority. This will support seven awards to health science scholars.

*Research grants.*—An increase of \$1,027,000 for a total of \$2,288,000 in 1969 consisting of \$888,000 carryover in 1968 funds and \$1,400,000 requested in new obligational authority will fund approximately 30 research projects in 1969.

*Regional medical library grants.*—An increase of \$1,734,872 will bring the total for this program to \$2,415,000 composed of \$915,000 carryover in 1968 funds and \$1,500,000 requested in new obligational authority. This will fund approximately eight regional medical library grants in 1969.

*Development and partial installation of second generation MEDLARS.*—An increase of \$1,054,415 and six positions will provide project management, systems design, computer software purchase, a portion of hardware purchase, and additional staff to accomplish partial development and installation of an improved and expanded Medical Literature Analysis and Retrieval System (MEDLARS).

*Toxicology information.*—An increase of \$257,507 and four positions will provide funds and additional manpower for planning, systems design, and engineering related to development of the Toxicology Information Exchange and the toxicological information subsystem of the health information network.

*National Medical Audiovisual Center.*—An increase of \$182,964 is requested to replace unserviceable audiovisual media in the worldwide distribution system, to acquire professional medical television taped programs and research material for radio dissemination for duplication and distribution to support

continuing education of health scientists and medical practitioners, and to cover increased costs of producing and distributing audiovisual materials.

*Research and support contracts.*—A total of \$585,000 is recommended for this purpose in 1969, an increase of \$52,000 over 1968. The 1969 funding level includes \$258,000 remaining available from 1968 and \$327,000 in new funds. These funds will be used for systems engineering and network design contracts for the health information network and publications support contracts.

*Program direction.*—An increase of \$134,014 will cover the increased administrative support and program management costs resulting from growing needs of programs which were new in 1968.

*Construction grants.*—No new obligational authority is requested for construction grants in 1969. Funds in the amount of \$1,250,000 remaining available from 1968 will support one construction project in 1969 compared to 10 projects funded in the amount of \$10,000,000 during 1968. The difference between the program levels of the two years is a reduction of \$8,750,000.

*Library resource grants.*—A total of \$2,800,000 is recommended for this purpose in 1969, a decrease of \$737,392 from 1968. The 1969 funding level includes \$300,000 remaining available from 1968 and \$2,500,000 in new funds. These funds will support approximately 300 grants, the same number that was funded in 1968. The average award, however, will be lower in 1969.

*Publications support grants.*—A total of \$300,000 is requested for this purpose in 1969, a reduction of \$71,815 below the \$371,815 available in 1968. The 1969 request will support 10 grant awards as compared with the 12 being funded in 1968.

*Review and approval of grants and contracts.*—A decrease of \$49,693 in the 1969 request results from a reduction in the printing budget of this activity and reduced costs of grant review and processing support under the NIH management fund agreement.

EXPLANATION OF TRANSFERS

<i>1968 estimate</i>	<i>Purpose</i>
Transfer from "Communicable Diseases", \$1,762,000	The Public Health Service Audiovisual Facility was transferred organizationally from the Bureau of Disease Prevention and Environmental Control and redesignated National Medical Audiovisual Center.

JUSTIFICATION—NATIONAL LIBRARY OF MEDICINE

	1968 estimate		1969 estimate		Increase or decrease	
	Positions	Amount	Positions	Amount	Positions	Amount
Personnel compensation and benefits.....	536	\$5,043,700	546	\$5,312,000	+10	+\$268,300
Other expenses.....		22,962,762		18,004,000		-4,958,762
Total.....	536	28,006,462	546	23,316,000	+10	-4,690,462

GENERAL STATEMENT

The application of new biomedical knowledge to the people's health requires the conversion of traditional libraries to active information servicing and disseminating agencies. The National Library of Medicine, by virtue of its statutory mission and its leadership in the employment of new communications technologies has become a principal focus for this aspect of the national health effort.

The goal of the NLM is to assist the advancement of medical and related sciences through the support and operation of programs to improve the flow of health information from the point of generation to ultimate users for its application to research, education, and medical practice (thus contributing to the general health by bringing the latest advances in health care to the patient).

The 1969 budget request includes the provision of funds for all categories of support authorized under the Medical Library Assistance Act of 1965 whose purpose it is to assist in the development and support of the Nation's biomedical information resources. Increases are requested for training of biomedical infor-

mation specialists, special scientific projects, research in medical library science, and development of regional medical libraries.

The budget contains increases for the Library's direct operations to: (1) continue the design and development of a second-generation MEDLARS computer system; (2) further the design and operation of a Toxicology Information Program; (3) fund project contracts for health information network design; (4) augment resources available to provide services at the National Medical Audiovisual Center; and, (5) strengthen program direction and administrative support for all Library programs.

## GRANTS

The Medical Library Assistance Act of 1965 authorizes a program of grants for the purpose of assisting the health community in the acquisition, organization, dissemination and application of medical knowledge. The purpose of this Act is to encourage and assist the development of medical libraries and related resources to provide for the improved flow of biomedical information throughout the areas of research, education and medical practice, so that existing medical knowledge can be utilized to the fullest extent in improvement of health throughout the Nation.

## CONSTRUCTION

	1968 estimate		1969 estimate		Increase or decrease	
	Posi- tions	Amount	Posi- tions	Amount	Posi- tions	Amount
Grants.....		\$10,000,000		\$1,250,000		-\$8,750,000

According to current estimates of total national needs for the construction and renovation of health library facilities, a priority group of 200 academic institutions and a secondary group of 750 medical care institutions are in need of assistance.

For 1969, NLM expects to receive approximately 30 library construction applications for partial funding from medical schools and other major institutions. Of the 30 anticipated applications, it is expected 20 will be recommended for approval. At an estimated average request of \$1,300,000 per applicant the total recommended for approval in 1969 is estimated at \$26,000,000. In 1967, nine construction grant applications were approved amounting to \$7,000,000. It is expected that 15 applications will be approved in 1968 amounting to \$18,000,000.

In 1968, \$11,250,000 will be available for funding construction grants of which we expect to obligate \$10,000,000. Funds in the amount of \$1,250,000 appropriated in 1968 will be available for the award of one construction grant in 1969. No new obligational authority is being requested in 1969. The decrease of \$8,750,000 is consistent with the general requirement for reduction in federal expenditures as expressed by the Congress in enacting the Continuing Resolution and as implemented by the Administration in establishing constraints on federal support for new construction projects.

## TRAINING

	1968 estimate		1969 estimate		Increase or decrease	
	Num- ber of awards	Amount	Num- ber of awards	Amount	Num- ber of awards	Amount
Noncompeting continuation grants.....	15	\$877,251	11	\$718,000	-4	-\$159,251
New grants.....	5	265,876	13	715,000	+8	+449,124
Total.....	20	1,143,127	24	1,433,000	+4	+289,873

The Library requests an increase of \$289,873 in 1969 for training grants. This will result in total obligational authority of \$1,433,000 in 1969 composed of \$433,000 brought forward from 1968 plus \$1,000,000 in new obligational authority (the amount of yearly authorization in the Medical Library Assistance Act). The 1968 base of \$1,143,127 is composed of \$579,834 brought forward from 1967 plus \$563,293 of new obligational authority.



The Medical Library Assistance Act authorization of \$1,000,000 per year for training can support approximately 100 trainees per year for a total of approximately 500 during the five year period authorized by the Act. Since the fiscal authorization for training cannot approach fulfillment of the estimated total professional medical librarian manpower requirement, the program focuses on training persons for creative leadership in positions of major responsibility. A conference at the University of Washington on Education for Medical Librarianship conducted during 1968 has helped to define these goals.

In 1968 five innovative graduate programs in medical librarianship are being supported in library schools at the University of Chicago, University of Minnesota, University of Illinois, University of California at Los Angeles, and Case Western Reserve University. A doctoral program in biological sciences communication is being supported at George Washington University, and a new postdoctoral training program in biomedical communication has been initiated at Tulane University. Five postgraduate internship programs in medical librarianship are being supported in medical schools at Washington University, Wayne State University, Johns Hopkins University, University of Tennessee, and University of California at Los Angeles. Approximately 60 trainees are enrolled in these 12 programs during 1968.

The number of training programs in medical librarianship and biomedical communication is expected to increase to 24 in 1969 with an enrollment of approximately 100 trainees. New training grant applications now in the review process and others in preparation propose innovative programs for the development of various new careers in biomedical communications. The increasing uses of complex automated systems and the potential applications of various new communications media require the training of biomedical communications specialists who have the capability for the design, development, and management of multi-media information systems. There is increasing interest in doctoral and postdoctoral training programs for biomedical communication specialists. Continued grant assistance will be provided for graduate training programs in history of medicine at Yale University and Johns Hopkins University.

## SPECIAL SCIENTIFIC PROJECTS

	1968 estimate		1969 estimate		Increase or decrease	
	Posi- tions	Amount	Posi- tions	Amount	Posi- tions	Amount
Grants.....		\$120,000		\$200,000		+\$80,000

The purpose and intent of the Special Scientific Project Awards program is to support outstanding scholars in contributing to the professional and scientific literature.

The awards support senior health science scholars in their full-time analysis and synthesis of existing publications and reports of research findings. These studies result in the creation of digests and texts necessary to the advance of medicine. These awards also support scholarly studies on social and cultural aspects of health sciences.

This program has been announced to all medical school faculties and to certain other academic and research centers. While three awards have been made to outstanding scholars, approximately 40 persons have indicated interest in applying for these awards. In response to this interest it is estimated that the number of awards will increase to seven in 1969 for a total amount of \$200,000.

## RESEARCH

	1968 estimate		1969 estimate		Increase or decrease	
	Num- ber of awards	Amount	Num- ber of awards	Amount	Num- ber of awards	Amount
Noncompeting continuations.....	15	\$564,160	11	\$300,000	-4	-\$264,160
New grants.....	6	696,840	19	1,988,000	+13	+1,291,160
Total.....	21	1,261,000	30	2,288,000	+9	+1,027,000

The efficient, rapid, and effective flow of biomedical information requires innovative tools and systems which must be developed through studies, experiments, and investigations. Careful studies must be made to determine the information requirements and patterns of biomedical researchers, students, educators, and practitioners. New and constantly improved methods for organizing, preserving, and transmitting information must be developed. Automation must be further introduced, developed, and evaluated. Synthesis of behavioral and technical research must be explored and accomplished. The components of information flow systems must be assembled and organized to form total systems and comprehensive networks.

The Extramural research program has initiated support of studies and experiments in the above areas. Many of these studies and experiments require long-term and expanding financial support. An increasing number of grant applications are being received for larger and more comprehensive studies and for development of major systems. It is expected that more than 20 research projects will be supported in 1968 and that this number will increase to more than 30 projects by 1969. Research projects being supported during 1968 which will require continued support in 1969 include studies on communications processes and the flow of medical information, the relationships between various biomedical information facilities and services, the cost-effectiveness of certain indexing techniques, the use of self-instructional materials, historical studies, and the introduction and evaluation of new techniques and systems in medical libraries.

## LIBRARY RESOURCES

	1968 estimate		1969 estimate		Increase or decrease	
	Posi- tions	Amount	Posi- tions	Amount	Posi- tions	Amount
Grants.....		\$3,537,392		\$2,800,000		-\$737,392

bligations for resources grants in 1968 consist of \$2,200,000 in new obligational authority plus \$1,337,392 brought forward from 1967. The \$2,800,000 requested for 1969 represents a net decrease of \$737,392 in obligational authority.

The purpose of the medical library resources program is to provide financial assistance and incentive for improving the basic materials, equipment and services of medical libraries. Although it has been estimated that there are approximately 6,300 medical libraries in the United States, the resources grants program will focus on assisting approximately 500 of the major libraries which serve comparatively large and varied health science clientele. The amount of each resource grant is computed by a formula based on the annual operating budget of the library. A library receiving an initial award may request continued support for subsequent years in decreasing amounts.

This program is vital and essential for the immediate and rapid improvement of the several hundred medical libraries which are major stations and links in the development and operation of the national health sciences information network.

During 1967 awards were made to 136 academic libraries in the amount of \$2,523,669; 105 hospital libraries in the amount of \$562,411; 17 medical societies and other institutions in the amount of \$249,620; for a total of 258 awards amounting to \$3,335,700. Estimated 1969 continuing commitments from these 258 awards will amount to approximately \$2,200,000. It is estimated that 42 new awards will be made in 1968 in the amount of \$700,000 which will generate an additional \$583,000 in continuing commitments for 1969. Thus, approximately \$2,800,000 will be required to fund continuing commitments on resources awards activated in 1967 and 1968. No new awards are planned for 1969. Since continuation commitments on resources grants are on an annually decreasing formula basis and no new awards will be made in 1969, the request is \$737,392 below the amount provided in 1968.

## REGIONAL MEDICAL LIBRARIES

	1968 estimate		1969 estimate		Increase or decrease	
	Posi- tions	Amount	Posi- tions	Amount	Posi- tions	Amount
Grants.....		\$680,128		\$2,415,000		+\$1,734,872

The Medical Library Assistance Act of 1965 authorized appropriations to assist in the development of a national system or regional medical libraries each of which would have facilities of sufficient depth and scope to supplement the services of other medical libraries within a specific region. Grants are awarded to improve, augment, and strengthen regional service in selected libraries which already have a sound base for providing expanded services in a defined region. These libraries will be critical service complexes for the developing network system.

The intent of this program is to provide support to existing superior institutions, permitting them to extend their services in support of libraries (and individuals) in the agreed region. Statutory limitations on funding strictly limit the number of regional libraries which can be supported.

In 1967 the first regional library grant was made to Countway Medical Library of Harvard University. This enabled the activation of the New England regional medical library system. In 1968 two more regional medical libraries are being established, in Seattle for the Pacific Northwest (including Alaska) and in Philadelphia, for the Delaware Valley complex. Negotiations are underway for a regional medical library in New York, in Illinois, Texas, and the Southeast. The Library requests \$2,415,000 for continued support of the three established in 1967 and 1968 and for five additional regional libraries in 1969.

## PUBLICATIONS

	1968 estimate		1969 estimate		Increase or decrease	
	Posi- tions	Amount	Posi- tions	Amount	Posi- tions	Amount
Grants.....		\$371,815		\$300,000		-\$71,815

The Library provides financial assistance for non-profit biomedical publications, concentrating on "secondary publications" (indexes, abstracts, bibliographies, translations, handbooks, etc.) which assist in making available to the health professions information of importance to the national health effort.

The first grants made in the publications program have yielded important bibliographies and indexes and additional publications in the form of abstracts, translations, handbooks, and biomedical atlases are in preparation. It is expected that 15 new publications grants and contracts will be approved in 1968, and it is estimated that 20 may be approved in 1969.

An important focus for the Library's activities in the 1969 program will be a study covering the review and evaluation of the needs of American health sciences personnel for biomedical information originally published in a foreign language.

## DIRECT OPERATIONS

	1968 estimate		1969 estimate		Increase or decrease	
	Posi- tions	Amount	Posi- tions	Amount	Posi- tions	Amount
Personnel compensation and benefits.....	536	\$5,043,700	546	\$5,312,000	+10	+\$268,300
Other expenses.....		5,849,300		7,318,000		+1,468,700
<b>Total.....</b>	<b>536</b>	<b>10,893,000</b>	<b>546</b>	<b>12,630,000</b>	<b>+10</b>	<b>+1,737,000</b>
<b>Subactivities:</b>						
Library operations.....	289	5,085,400	295	6,147,000	+6	+1,061,600
Toxicology information.....	30	1,152,000	34	1,452,000	+4	+300,000
National Medical Audiovisual Center.....	105	1,762,000	105	1,962,000		+200,000
Research and support contracts.....		533,000		585,000		+52,000
Review and approval of grants and contracts.....	45	800,600	45	780,000		-20,600
Program direction.....	67	1,560,000	67	1,704,000		+144,000
<b>Total.....</b>	<b>536</b>	<b>10,893,000</b>	<b>546</b>	<b>12,630,000</b>	<b>+10</b>	<b>+1,737,000</b>

## LIBRARY OPERATIONS

	1968 estimate		1969 estimate		Increase or decrease	
	Posi- tions	Amount	Posi- tions	Amount	Posi- tions	Amount
Personnel compensation and benefits.....	289	\$2,621,200	295	\$2,805,700	+6	+\$184,500
Other expenses.....		2,464,200		3,341,300		+877,100
<b>Total.....</b>	<b>289</b>	<b>5,085,400</b>	<b>295</b>	<b>6,147,000</b>	<b>+6</b>	<b>+1,061,600</b>

The Library requests a net increase of \$1,061,600 and six positions to continue the design and begin installation of a second generation Medical Literature Analysis and Retrieval System (MEDLARS II) and to cover the costs of built-in increases of \$84,185 for positions new in 1968 and extra day's pay in 1969 less built-in decreases of \$77,000 for nonrecurring equipment costs.

The program increase of \$1,054,415 and six positions is requested to continue design and begin installing MEDLARS II. The increasing volume of published medical literature and increasing service demands will soon exceed the capacity and capability of the present MEDLARS system to absorb the growing workload. The present system which became operational in 1964 is performing as planned over its projected system life of five years which ends June 1969. It is now operating at 95% of capacity, and, before the end of the year, NLM will have to find time on other equipment to augment this system.

The MEDLARS II computer configuration will incorporate: (1) increased processing capability; (2) intermediate access storage; (3) time-sharing; and, (4) on-line access to data bases from remote terminals. Translated into program capabilities, these new features will provide: (1) a greatly increased file capacity which will allow the maintenance of abstracts on the data record; (2) quicker response to an increasing volume of bibliographic service requests including demand searches and recurring bibliographies; (3) more current data through on-line record up-dating; (4) an automated acquisition and cataloging system with cataloging data availability to other medical libraries through remote terminal access to the NLM record files; (5) a graphic image storage and retrieval system for more rapid provision of interlibrary loans through automated search and print-out capability; (6) development of specialized information services supporting the toxicology information and drug literature programs through the addition of chemical structure search capabilities in the new system; and, (7) additional information management capabilities to be utilized in support of the health information network described below under the research and support contract subactivity.

The bulk of the increase will provide funds for the purchase of computer hardware and software, contractual services for project management and systems design, and to pay salaries for six new positions at the Library to support and monitor system development and conversion to the new system.

By agreement with the Library of Congress and the National Agricultural Library, every effort will be made to insure compatibility among the systems under development at the three National libraries.

## TOXICOLOGY INFORMATION

	1968 estimate		1969 estimate		Increase or decrease	
	Posi- tions	Amount	Posi- tions	Amount	Posi- tions	Amount
Personnel compensation and benefits.....	30	\$372,700	34	\$407,500	+4	+\$34,800
Other expenses.....		779,300		1,044,500		+265,200
Total.....	30	1,152,000	34	1,452,000	+4	+300,000

The harmful effects of chemicals in man's environment has become a matter of great social concern. As a result, many agencies, governmental, academic, and industrial have been compiling information files in considerable variety relating to the toxic effects of chemical substances. The objective of the Toxicology Information Program is to design intercommunication linkages so that these files may be made accessible as a national information resource for use of scientists, administrators, and planners, thereby responding to the requirements expressed by the President's Science Advisory Committee.

In 1969 the requested increase of \$300,000 includes \$42,493 for built-in increases. A program increase of \$257,507 is requested to fund contracts and four positions for systems engineering and network design relating to toxicology information.

During 1968 the Toxicology Information Program has made considerable progress in preliminary design of the network through the convening of professional advisory groups, coordination with other government agencies, the National Academy of Science-National Research Council, and the private sector, the award of contracts for user studies and source identification and recruitment of a core top-flight program staff. All of these program accomplishments contribute to the planning of a nationwide toxicology information system fully integrated with the emerging national health information network. When operational, the toxicology program will:

1. Identify, classify, and maintain current descriptions of all toxicology information users and all significant centers and services which accumulate and analyze toxicology information.
2. Propose compatible systems standards and guidelines within Government for storage and retrieval of toxicology information including common vocabulary systems and compatible computer programming, and promote their adoption by the non-Government sector.
3. Respond to incoming requests for stored information, directly or by referral, and provide or arrange repackaging of stored information where significantly large user-groups are identified.
4. Provide a data base for the study of biological effects of chemicals which have a meaning to life systems.

The Toxicology program will contribute to the Nation's health by providing a central resource for information on the toxic effects of chemical agents on man. Preliminary design conducted in 1968 will include the following factors:

1. availability of facilities;
2. network control features; and
3. information content and sources.

The \$257,507 program increase allocated to toxicological network design and systems engineering in 1969 will be used for contractual support and four new positions to assist in the detailing and description of the above-listed design factors and in the modelling of a nationwide public service-oriented network.

The National Toxicological Information Network will utilize the facilities and capabilities of existing related systems to enhance the services provided to its customers. During the latter part of 1968 and throughout 1969 the NLM will establish an interconnection with the Army Chemical Information Data System (OIDS) via a remote console-to-computer link and will experiment with the utilization of this related Government-sponsored system to increase its own effectiveness within the health and pharmacological community.

In-house and contractual efforts concerned with toxicological network design in 1969 will resolve problems associated with the organization of computer data banks in order to permit easy access by individual specialists and qualified users of the system.

Following the preliminary design efforts of 1968 and 1969, the Toxicological Information Network will be ready for phased implementation with some experimental services by 1970.

## NATIONAL MEDICAL AUDIOVISUAL CENTER

	1968 estimate		1969 estimate		Increase or decrease	
	Posi- tions	Amount	Posi- tions	Amount	Posi- tions	Amount
Personnel compensation and benefits.....	105	\$1,072,800	105	\$1,090,700	.....	+\$17,900
Other expenses.....		689,200		871,300	.....	+182,100
Total.....	105	1,762,000	105	1,962,000	.....	+200,000

In 1968 the newly designated National Medical Audiovisual Center (NMAC) was transferred from the Bureau of Disease Prevention and Environmental Control to the NLM. The National Medical Audiovisual Center was founded in Atlanta in 1942, as a part of the Malaria Control in War Areas Program. It came into existence during World War II when emergency training efforts proved that visual teaching media were efficient tools for instructing military and civilian personnel in new, sometime highly specialized, jobs. With the formation of the Communicable Disease Center in 1947, the audiovisual programs become a Branch of the Center. The Branch was later designated the Public Health Service Audiovisual Facility.

The program of the NAMC includes:

- (1) operation of a central facility in the Public Health Service for the development, production, distribution, evaluation, and utilization of motion pictures, videotapes and other audiovisual forms;
- (2) provision of consultation and assistance in the development of specialized audiovisual activities; and,
- (3) promotion of the production, dissemination, and utilization of medical films and other audiovisuals in the schools of health professions and elsewhere.

With the explosion of population, knowledge, and curriculum content, and the increasingly unfavorable teacher/student ratios, there is an urgent and expanding need for the development and use of audiovisual resources in schools of the health professions and for use in national programs for continuing education in the health sciences.

During the last several years, the National Medical Audiovisual Center program has achieved significant progress toward implementation of portions of the recommendations of the President's Commission on Heart Disease, Cancer, and Stroke, relating to the use of audiovisual media in the health sciences. In addition, a prototype community medical television network (12 stations) was established in the Atlanta area linking this Center with Grady Memorial Hospital, Emory University Medical School, the Veterans Administration Hospital, the Georgia Department of Public Health and several other hospitals in the community. This instructional system was pretested in 1967 and became fully operational during 1968. Medical schools and hospitals in other areas of the United States have observed and studied the results of the programs transmitted under the system. Consultation, program materials, and selected assistance were made available as required. In 1969 this demonstration project will not receive major fiscal support from the Center but will continue to operate as a community system. However, the Center will participate actively as a member of the consortium.

The requested increase of \$200,000 includes built-in increases of \$17,036 and a program increase of \$182,964 which will be applied to: an essential replacement of audiovisual media in the worldwide distribution system including motion pictures, filmstrips, audiotapes, and television tapes to maintain an effective biomedical audiovisual distribution program for health practitioners, researchers, and schools of the health professions; and, an expanded review and selection program of professional medical television taped resource material which is essential for the rapid dissemination of biomedical information to support continuing medical education of health scientists and practitioners. A considerable quantity of current and outstanding medical education material is now available in this format and maximum use of its potential should be made. In addition to the above, the increased funding will also permit a minimal expansion of on-going biomedical audiovisual support by increasing the production output of

biomedical videotapes, motion pictures, filmstrips, slide series, and audiotapes; increasing the loan and sale of audiovisuals through the worldwide distribution system; and increasing on-site surveys and reports on communications resources and facilities at schools of the health professions.

## RESEARCH AND SUPPORT CONTRACTS

	1968 estimate	1969 estimate	Increase or decrease
Contracts.....	\$533,000	\$585,000	+\$52,000

The Medical Library Assistance Act authorizes the Library to use contractual funding in addition to grant funding for research and publications support.

The net increase of \$52,000 results from an increase of \$75,000 for research contracts and a partially offsetting decrease of \$23,000 from the 1968 level for publications support contracts as summarized in the following table:

	1968 estimate	1969 estimate	Increase or decrease
Research contracts.....	\$225,000	\$300,000	+\$75,000
Publications support contracts.....	308,000	285,000	-23,000
Total.....	533,000	585,000	+52,000

In 1969 the \$300,000 in research contracts are requested for health communications systems engineering and network design directed toward the design and development of a national health information network.

The Biomedical Communications Network has been established as a national multimedia communications network to serve the information needs of the health community and to assist in the continuing education of health professionals. The effort was undertaken on the recommendation of the House and Senate Appropriations Committees in 1966 and the Special Subcommittee on the Investigation of the Department of Health, Education, and Welfare, pp. 156-157, in 1966. The Network is comprised of four service components and one support component as follows:

- (1) The library component.
- (2) The specialized information component.
- (3) The educational and instructional TV component.
- (4) The audio and audiovisual component.
- (5) Data processing and data transmission facilities.

In 1968 in-house and contractual efforts are directed principally toward the design and configuration of the library component of the network. In particular, a nationwide, service-oriented network centered around the existing NLM MEDLARS System has been in preliminary design. The geographical coverage, the scope of services to be provided and the means of access by both individual and institutional users are the primary design factors being formulated in 1968. The present effort is directed toward delineating the communication media themselves, the determination of the benefits of using common carriers versus dedicated communication links, and the determination of the terminal devices needed.

The \$300,000 allocated to Systems Engineering and Network Design Research and Development contracts in 1969 will permit the detailed design of the library component and the first experimental operation of improved selected services. Direct access to medical literature data bases from remote sites by individual health professionals will be made available. Interrogation of several complementary data bases from a single site will enhance medical information services to the health community and will permit the more profitable utilization of the time spent in seeking information on the part of health practitioners.

In addition, a first model of the specialized education (ETV and ITV) component of the network will be formulated. This model will include alternative combinations of satellite communications and terrestrial communications such as microwave and cable. It will be heavily dependent for subsistence on the library component and although it will have to await increased funding before it can contribute substantially to the improvement of continuing medical education, ..

will provide an initial demonstration of the feasibility and value of utilizing these information channels.

Contractual effort during 1969 will be focused on experimental operations of direct access services to central data banks from remote sites, on multi-file query from a single site, on modelling a specialized educational services network utilizing satellite communications as one alternative, and on determining final configuration of the library component in terms of network node locations and services, as well as the specific techniques and services to be embedded in the system.

The \$285,000 allocated to publications support contracts in 1969 will be used for the same types of projects described under publications grants.

REVIEW AND APPROVAL OF GRANTS AND CONTRACTS

	1968 estimate		1969 estimate		Increase or decrease	
	Posi- tions	Amount	Posi- tions	Amount	Posi- tions	Amount
Personnel compensation and benefits.....	45	\$376,100	45	\$380,200		+\$4,100
Other expenses.....		424,500		399,800		-\$24,700
Total.....	45	800,600	45	780,000		-\$20,600

This activity of the Library is responsible for the scientific review and evaluation and administration of the extramural grant and contract program.

The net decrease of \$20,600 for review and approval of grants and contracts is comprised of a program decrease of \$49,693 partially offset by built-in increases of \$29,093. The program decrease in 1969 consists of reductions in the ting budget of this activity and reduced grant review and processing support under the NIH management fund agreement.

PROGRAM DIRECTION

	1968 estimate		1969 estimate		Increase or decrease	
	Posi- tions	Amount	Posi- tions	Amount	Posi- tions	Amount
Personnel compensation and benefits.....	67	\$600,900	67	\$627,500		+\$27,000
Other expenses.....		959,100		1,076,100		+\$117,000
Total.....	67	1,560,000	67	1,704,000		+\$144,000

The total amount requested for program direction is \$1,704,000, an increase of \$144,000 over the amount provided in 1968. This activity includes salaries and other expenses for the overall program and administrative management of the NLM including physical plant maintenance, communications and utilities, security, and various centralized administrative and maintenance services provided by the NIH. Positions funded from this activity are those in the immediate Office of the Director including public information and publications management and the Office of Administrative Management staff.

In 1969, the increase of \$144,000 comprised of built-in increases in the amount of \$9,986 and a program increase of \$134,014, will provide the additional administrative support and program management required by the increasing demands of programs which were new in 1968. Factors which contribute directly to increased workloads and costs in program direction include the organizational transfer this year of the National Medical Audiovisual Center located in Atlanta, Georgia, to the NLM, increasing participation and cooperation of the NLM in international support and exchange programs, growth in the contract administration and management load on program direction staff resulting from program increases for toxicology information, research and development, and MEDLARS II development, and increases in the costs of goods and services. The bulk of the increase will cover increased payment to the NIH management fund for centralized administrative services including project contract negotiation and administration, increased travel costs between Atlanta and Bethesda, and increased overtime and consultative services related to increasing workload on program direction staff.



## NEW POSITIONS REQUESTED FISCAL YEAR 1969

	Grade	Annual salary
<b>Second generation MEDLARS development and partial installation:</b>		
Public health program specialist.....	GS-15	\$18,404
Systems analyst.....	GS-13	13,507
Programmer.....	GS-12	11,461
Programmer.....	GS-11	9,657
Secretary.....	GS-7	6,734
Secretary.....	GS-5	5,565
<b>Total (6).....</b>		<b>65,328</b>
<b>Toxicology information:</b>		
Public health program specialist.....	GS-14	15,841
Systems analyst.....	GS-13	13,507
Programmer.....	GS-9	8,054
Secretary.....	GS-5	5,565
<b>Total (4).....</b>		<b>42,967</b>
<b>Total new positions, all activities (10).....</b>		<b>108,295</b>

Name: Martin Marc Cummings.

Position: Director, National Library of Medicine.

Birthplace and date: Camden, New Jersey, September 7, 1920.

Education: B.S., Bucknell University, 1941; M.D., Duke University School of Medicine, 1944; mixed internship, Boston Marine Hospital, 1944-45; assistant resident, medicine, Boston Marine Hospital, 1945-46.

Experience: Director, National Library of Medicine, 1964 to present; DHVP representative on the Committee on Science and Technological Information (COSATI) of the Federal Council on Science and Technology, 1965 to present; associate director for research grants, NIH, 1963; chief, Office of International Research, NIH, 1961-63; consultant, Office of the Director, NIH, 1960-61; consultant to Department of Medicine and Surgery, Veterans Administration, 1959-61; chairman and professor, Department of Microbiology, University of Oklahoma School of Medicine, Oklahoma City, Oklahoma, 1959-61; chairman, Panel on Sarcoidosis, National Research Council, National Academy of Sciences, 1958-60; chairman, Committee on Medical Research, National Tuberculosis Association, 1958-59; director, Research Service, Veterans Administration Central Office, Washington, D.C., 1953-59; special lecturer in microbiology, George Washington University School of Medicine, Washington, D.C., 1953-59; chief, Tuberculosis Research Laboratory, Veterans Administration Hospital, Atlanta, Georgia, 1949-53; associate professor of bacteriology, 1953, and instructor through associate professor of medicine at Emory University School of Medicine, Atlanta, Georgia, 1948-53; director, Tuberculosis Evaluation Laboratory, Communicable Disease Center, U.S. Public Health Service, Atlanta, Georgia, 1947-49; commissioned officer, U.S. Public Health Service, served in New York, Minnesota, Michigan, and Denmark, working with diseases of the chest and bacteriology.

Association memberships: American Academy of Microbiology, Inc.; American Federation for Clinical Research; American Society for Clinical Investigation—Emeritus Member; American Thoracic Society and National Tuberculosis Association; Association of American Medical Colleges; Medical Library Association; National Association on Standard Medical Vocabulary (Honorary Member); The Society of the Sigma XI; American Documentation Institute; Council of Biology Editors, Inc.; The Royal Society of Medicine; one of twelve permanent members of the Federal Library Committee; Science Information Council, National Science Foundation; Association of Research Libraries—Automation Committee; Pacific Science Association, U.S. Panel, Standing Committee on the Communication of Scientific Information; consultant to the Special Joint Committee on Libraries in International Education (Association of Research Libraries, Spec. Libraries Association, The Council of National Library Associations and the American Library Association); consultant, American Hospital Association, Committee on Library Services for Hospitals; Board of Directors, Gorgas Memorial Foundation; Board of Directors, Council on Biological Science Information, NRC, NAS, Board of Visitors of the Medical Center of Duke University.

Special awards, citations, or publications: VA Distinguished Service Award; DHEW Superior Service Award; more than seventy articles on subjects ranging

from tuberculosis to information retrieval systems; coauthor of a textbook on tuberculosis and contributor to four medical texts.

#### INTRODUCTION OF NEW STAFF MEMBERS

Senator HILL. Now Dr. Cummings, of the National Library of Medicine. We are glad to have you here and you may proceed in your own way, sir.

Dr. CUMMINGS. Thank you, Mr. Chairman. I would like the privilege of introducing some new staff members, if I may.

Senator HILL. Good.

Dr. CUMMINGS. I have with me Mr. George Russell, the Library's Executive Officer. Mr. David Kefauver, our Associate Director for Extramural programs, and Dr. Ruth Davis, our new Associate Director for Research and Development.

Senator HILL. It is nice to have all of you here.

#### HEALTH INFORMATION ROLE OF THE LIBRARY

Dr. CUMMINGS. Mr. Chairman, the National Library of Medicine has been the major health information resource in the United States for more than a century.

It contributes to the improved health of the Nation by providing timely access to the constantly expanding mass of health information for practitioners, researchers, educators, and students in the health sciences.

#### HEALTH SCIENCES PUBLICATIONS AND INFORMATION

The expanding national investment in medical research and the delivery of health services has accelerated publication and utilization of information in the health sciences.

While this committee meets today, more than 1,000 new medical articles are being published.

Senator HILL. More than 1,000?

Dr. CUMMINGS. More than 1,000 new scientific articles relating to medicine are being published today.

The National Library of Medicine has long been in the forefront of the development of new and better methods for collecting, organizing, processing, and disseminating health information.

#### MEDICAL LITERATURE ANALYSIS AND RETRIEVAL SYSTEM (MEDLARS)

We pioneered in the establishment of the medical literature analysis and retrieval system (MEDLARS) which contains more than 750,000 augmented bibliographic citations in a high-speed computer memory.

#### INDEX MEDICUS

With this system we produce Index Medicus, which each month indexes over 15,000 current journal articles, as well as special recurring and demand bibliographies. To derive more benefits nationally from this system, the Library supports six university-based decentralized MEDLARS search centers.

Even this application of modern technology, however, will not be sufficient to meet the growing demands of health information users.

This fact has been recognized by the Congress and the executive branch and the Library has been given a mandate to design and oper-

ate improved systems for the processing and delivery of health-related information.

I am pleased to report that we have made significant progress during the last year toward achieving these ends.

#### BIOMEDICAL COMMUNICATIONS NETWORK DESIGN

Pursuant to the recommendations of the House Appropriations Committee Report, 1967, and the Rogers Special Subcommittee on Investigation of HEW (89th Cong., second sess., H. Rept. 2266), the Library has established and successfully staffed a program of developmental and engineering work relating to a biomedical communication network.

The staff of this program has prepared a preliminary design for such a network, which encompasses medical libraries, specialized information centers, audiovisual communications, and related components.

#### NATIONAL MEDICAL AUDIOVISUAL CENTER

Consistent also with the recommendations of the Rogers special subcommittee, the National Medical Audiovisual Center in Atlanta, Ga., was transferred administratively to the National Library of Medicine last July.

Senator HILL. You now have it here, don't you?

Dr. CUMMINGS. The physical facility remains in Atlanta.

Senator HILL. But it remains under your jurisdiction?

Dr. CUMMINGS. It is under the Library's jurisdiction.

Significant progress has been made on the coordination of the NLM and the NMAC functions, and their orientation to common objectives in such areas as continuing education of health professionals.

#### SECOND GENERATION MEDLARS

Increases provided in the 1968 appropriation are being used to fund the effort to develop a second generation computer system for MEDLARS.

We have developed functional specifications, received bids, established a painstaking evaluation procedure, and we will negotiate a contract this fiscal year for the first portion of a more powerful and sophisticated information system.

The Library is conducting experiments to gain experience in access to remote files of machine readable information.

The new MEDLARS system incorporating this feature will be used to support library-based information services in the network, to provide for the highly specialized requirements for the processing of toxicological information, and to improve the effectiveness of the Library's internal operations.

#### TOXICOLOGY INFORMATION

Planning for the toxicological information program, mandated by the President's Science Advisory Committee, has accelerated with professional staffing made available this year.

The Library has awarded a contract this year for a definitive user study and will let another contract to build a source file on authors in toxicological information.

Most recently we have acquired the assistance of the National Research Council—National Academy of Sciences in the choice of substantive information within the system.

Senator HILL. That will be helpful, won't it?

Dr. CUMMINGS. That will be most helpful, Mr. Chairman.

#### REGIONAL MEDICAL LIBRARIES

Funds available from the 1968 appropriation were used to fund a grant establishing a regional medical library—the first of a system envisaged by the Medical Library Assistance Act of 1965—at Harvard University.

Two more have been approved for Philadelphia and Seattle. Applications for several others are in the negotiation stage. These regional libraries will become operating units in the library component of the network.

#### NATIONAL LIBRARY COOPERATION

Working with the two other “national” libraries, the Library of Congress and the National Agricultural Library, NLM has initiated an effort to insure compatibility among the computer-based systems under development in the three libraries, and to relate them to agreed national goals for library cataloging and for locating publications required by scientists and scholars.

#### EFFECTIVE COMMUNICATIONS

All of this has been done in recognition of the fact that progress in medical research and the application of new knowledge to health practice is largely dependent on effective communication.

The average practitioner can no longer rely on a few selected journals and local medical society conferences to keep him abreast of new developments.

New and more effective methods and media must be developed to meet the continuing education needs of physicians and other health professionals.

Unnecessary duplication of effort and waste of precious research manpower in unproductive investigations are possible costs to the Nation for maintaining an imperfect and overburdened health information system.

In order to modernize and transform the present overburdened informal system, the NLM has undertaken the preliminary development of a network model and design that will associate the NLM, the present set of medical and freestanding libraries, audiovisual and telecommunications resources, and specialized information centers in an integrated network.

The plan utilizes existing resources and introduces innovative technology in such areas as computer-based search and interchange through modern transmission devices.

In 1969, work will continue on the detailed analysis and investigation connected with fully implemented design and engineering.

#### 1968 APPROPRIATION AND 1969 BUDGET REQUEST

In summary, the National Library of Medicine is developing and will implement a plan for a national health information network for

practitioners, researchers, educators, and students in the health professions.

The integrated network will incorporate the latest technology and media and will contribute to the general health through the provision of timely service to the community of health information users.

Our budget request for 1969 is \$19,172,000, a decrease of \$2,502,000 in new obligational authority from the amount appropriated in 1968.

I shall be glad to answer any questions the committee may have.

Senator HILL. You got this decrease from what you had this year and then you got a decrease of about \$13 million or a little over \$13 million from what you requested; isn't that right?

Dr. CUMMINGS. That is correct, sir.

#### BUDGET REDUCTION EFFECT

Senator HILL. What will be the effect of all this decrease?

Dr. CUMMINGS. The principal adverse effect on the development of health programs for the Nation will come through the postponement or deferment of new library construction for the medical schools and universities of our Nation.

The major cutback is in this particular area.

Senator HILL. It is in that area?

Dr. CUMMINGS. Yes, sir.

Senator HILL. That is quite a reduction though; isn't it?

Dr. CUMMINGS. Yes; I think it is fair to say it was a significant reduction from the amount requested; that is true.

Senator HILL. The truth is that with the National Library of Medicine your program is entering a whole new era of acquisition of medical knowledge.

#### TRANSFER AND UTILIZATION OF KNOWLEDGE

Dr. CUMMINGS. I think we are not only entering into a new era of acquisition of medical knowledge but for me, Mr. Chairman, the more exciting prospect relates to the dissemination and utilization of this new knowledge which is being generated, as you know, as a result of research and scholarship throughout the world.

It seems to me that the most judicious investment of our resources should be on the end of the transfer and utilization of knowledge rather than merely the collection and acquisition of it.

Senator HILL. As important as acquisition is, it does not benefit us very much unless it is transmitted?

Dr. CUMMINGS. I agree with that statement. It is an exercise in futility to have information and knowledge that can't be applied because there is no access to it.

Senator HILL. You sure got quite a cut. This cut will retard your anticipated program very much; isn't that right?

Dr. CUMMINGS. Yes. The total evolution of our library and network planning will be retarded seriously as a result of this action.

#### BUDGET REDUCTION EFFECT

We will make tough decisions based on our judgment as to which elements of the network should receive the highest priority for the first phase of planning and implementation.

Senator HILL. That means others will be left out; is that right?

Dr. CUMMINGS. The principal losses, will, I believe affect the educational system of the Nation which has a massive need for refurbishment, renovation, and actual replacement of some of the library facilities which have been in a sad state of disarray for almost a decade.

#### DETERIORATION OF HISTORICAL MATERIALS

Senator HILL. A few years ago, Doctor, you brought several rather ancient books, shall I say, down with you.

Have you received sufficient funds to take care of this problem?

Dr. CUMMINGS. In the past, as you recall this committee has provided some assistance to the National Library to permit us to make microfilms of our deteriorating historical materials.

We have in the past succeeded in making copies of approximately 10 million deteriorating pages.

We have, however, facing us, more than 20 million pages for which we do not have funds for continued microfilming or other preservation techniques to be applied to this collection.

Senator HILL. This budget will not allow it?

Dr. CUMMINGS. This budget does not permit us to increase the rate of preserving this collection.

Senator HILL. Did you request more funds for this purpose?

#### ORIGINAL BUDGET REQUEST

Dr. CUMMINGS. In our original submission through the Public Health Service to the Department we did request funds for this purpose.

Senator HILL. How much?

Dr. CUMMINGS. I am not sure I can recall that figure, Mr. Chairman.

I will ask my executive officer if he has it available.

Mr. RUSSELL. I don't have the exact figure for how much of an increase we had requested for microfilming.

Senator HILL. Will you get that for the record and how much of your request was allowed and how much was disallowed so that we may have that in the record.

(The information follows:)

#### REQUEST FOR INCREASE FOR PRESERVATION FILMING, 1969 BUDGET

The National Library of Medicine requested an increase of \$297,500 for microfilming of 4,000,000 pages of deteriorating materials.

The budget allowance for the National Library of Medicine issued by the Department required substantial cuts in Library Operations activities. Increased preservation filming was one of several activities which were selected by the National Library of Medicine for deferment. Therefore the Department request to the Bureau of the Budget contained no increase for preservation filming.

#### SEARCH FOR AND UTILIZATION OF KNOWLEDGE

Senator HILL. I don't think there is anything more important than getting this knowledge out.

Dr. CUMMINGS. I agree with that.

Senator HILL. There is a whole lot more knowledge that we need . . . it is vital when we get it that we get it out.

Dr. CUMMINGS. I think that is correct. We need to continue our search for new knowledge and to continue our effort to utilize the existing knowledge concurrently.

Senator HILL. To put it to practical application, is that right?

Dr. CUMMINGS. That is correct, in my view.

Senator HILL. You are certainly right. Is there anything you would like to add, Dr. Stewart?

Dr. STEWART. No, sir.

Senator HILL. Is there anything you would like to add, Dr. Cummings?

Dr. CUMMINGS. I would like to thank you, Mr. Chairman, not only for the staff of the Library but for the Board of Regents of the Library who are most grateful and appreciative of the deep interest you have had in this national institution.

We would like to have the record show that we will be keenly aware of your absence in the future.

Senator HILL. I appreciate it very much. I am going to miss being here with you.

I want to express my great appreciation to you and your staff for the fine work that you have done out there at the Library.

Dr. CUMMINGS. Thank you very much.

Senator HILL. You have done a fine job.

Dr. CUMMINGS. Thank you very much.

#### ACQUISITION OF KNOWLEDGE

Senator HILL. I recall Sir William Osler said he could not have written his monumental work on the practice of medicine if he had not had the Surgeon General's library which is now the National Library of Medicine.

He was over in Baltimore where he had the B. & O. Railroad train that would bring him over in an hour's time.

A lot of doctors could not come here that way.

Dr. CUMMINGS. That is correct. I am delighted you know of his use of our library because I am told that he still is charged with a book that he signed out of the institution 60 years ago which he did not return.

We think it is missing because he lost it on the train between here and Baltimore. He sent Dr. Billings a letter offering to pay for it.

Senator HILL. We want to fix it so that they won't have to ride the train?

Dr. CUMMINGS. That is right. We would like the information to go to users by other more quick and more reliable means.

Senator HILL. Particularly most of your doctors, of course, are not within the Baltimore and Washington area but much more distant.

Dr. CUMMINGS. That is correct.

Senator HILL. I had the acquisition of new knowledge brought home to me when I had typhoid fever many years ago. My father was a doctor. He subscribed to the London Lancet. He had been there in London under Joseph Lister. He subscribed to the London Lancet like he did to a number of other foreign publications.

The fever had a way of going down at night and starting up in the afternoon. As long as it did that you had to stay in bed. While I v

in bed with this typhoid fever he found an article in the London Lancet telling of a medication that you could use to break that fever.

He used it on me and I got out of bed soon. I am very much interested in getting this knowledge out, Doctor.

Doctor, are you an M.D.?

Dr. DAVIS. No, sir, I am a mathematician, Mr. Chairman.

Senator HILL. Where did you go to school?

Dr. DAVIS. University of Maryland.

Senator HILL. You didn't have to come too far to the library then?

Dr. DAVIS. No, I didn't.

#### LIBRARY COMMUNICATIONS

Dr. STEWART. I think Dr. Davis illustrates, Mr. Chairman, that the field of communications in libraries is not as we have always visualized it. It is a lot more complicated.

Senator HILL. Much more complicated.

Well, you have brought us mighty good, compelling testimony, Doctor.

Dr. CUMMINGS. Thank you.



# Calendar No. 1468

90TH CONGRESS }  
2d Session }

SENATE

{ REPORT  
{ No. 1484

## DEPARTMENTS OF LABOR, AND HEALTH, EDUCATION, AND WELFARE, AND RELATED AGENCIES APPROPRIATION BILL, 1969

JULY 30, 1968.—Ordered to be printed

Mr. HILL, from the Committee on Appropriations,  
submitted the following

### R E P O R T

[To accompany H.R. 18037]

The Committee on Appropriations, to which was referred the bill (H.R. 18037) making appropriations for the Departments of Labor and Health, Education, and Welfare, and related agencies, for the fiscal year ending June 30, 1969, and for other purposes, report the same to the Senate with various amendments and present herewith information relative to the changes made:

Amount of bill passed by House-----	\$17,232,871,000
Amount added by Senate (net)-----	1,255,929,000
Total of bill as reported to Senate-----	18,488,800,000
Amount of appropriations, 1968-----	16,928,112,000
Budget estimates, 1969-----	19,301,525,000
The bill as reported to the Senate:	
Over the appropriations for 1968-----	1,560,688,000
Under the estimates for 1969-----	812,725,000

## DEPARTMENT OF LABOR

## MANPOWER ADMINISTRATION

## MANPOWER DEVELOPMENT AND TRAINING ACTIVITIES

1968 funds available	\$394,307,199
1969 budget estimate	413,096,000
House allowance	400,000,000
Committee recommendation	400,000,000

The committee approves the House allowance of \$400,000,000, a reduction of \$13,096,000 from the budget estimate, and \$5,692,801 above the funds available for 1968.

The Department informed the committee that the \$13,096,000 reduction will be applied against the institutional training program. The budget estimate provided for 109,000 institutional trainees, the same level as for 1968. The reduction will mean a 1969 level of 102,500 trainees, 6,500 below the 1968 level and 1969 request. The committee agrees with the House evaluation of the importance of institutional training and directs that the \$11,225,000 included for comprehensive manpower program planning, a new program, be utilized for institutional training, thus making a total of \$208,929,000 available for the 1969 program and providing 5,800 additional institutional training opportunities for a total of 108,300.

The committee urges the Department to pursue the prison inmates pilot training program more actively.

The committee understands that the Department is not approving either institutional training or on-the-job training programs for occupations which pay less than \$1.60 per hour or the prevailing area wage rate, whichever is higher. In service industries which were first brought under the Federal wage and hour law on February 1, 1967, and where the minimum wage does not reach \$1.60 per hour until February 1, 1971, this effectively strangles job opportunities for many of the hard-core unemployed. The Secretary of Labor and the Secretary of Commerce, in a joint memorandum to President Johnson on February 22, 1965, stated, "Service jobs have been growing at three times the pace of total employment in the past 10 years."

The committee feels that job opportunities in industries newly covered by the Federal wage and hour law should not be excluded from the MDTA programs, and that where such programs are approved, trainees' wages should not exceed the legal minimum wage being paid experienced employees in such industries.

The committee urges that every effort be made to fund up to the budget estimate for the concentrated employment programs.

Attention is drawn to the comments which appear under "Office of Economic Opportunity," page 86.

## OFFICE OF MANPOWER ADMINISTRATOR

## SALARIES AND EXPENSES

1968 funds available	\$30,775,194
1969 budget estimate	28,422,000
House allowance	26,722,000
Committee recommendation	26,722,000

The committee recommends \$26,722,000, the same as the House allowance, \$2,700,000 below the budget estimate, and \$4,053,194 below the funds available for 1968.

The National Center for Health Statistics is the principal organization in the Public Health Service engaged in the development and application of methods for the collection, processing, and analysis of health statistics of a descriptive character for use by the health community, both public and private.

The reduction from the 1968 appropriation is attributable to non-recurring computer rental costs in 1968 in the amount of \$189,000. The funds approved will provide an increase of \$155,000 for mandatory items such as Pay Act costs. Funds disallowed would have been used to initiate: (1) a national survey of family growth to collect information to assist Federal family planning programs; (2) a new training program to upgrade State health statistics offices; and (3) a series of studies to provide detailed demographic and geographic information for specific segments of large metropolitan areas.

#### NATIONAL LIBRARY OF MEDICINE

1968 appropriation	\$19,912,000
1968 funds available	21,556,000
1969 budget estimate	19,172,000
House allowance	17,149,000
Committee recommendation	19,172,000

The committee recommends an appropriation of \$19,172,000, a decrease of \$740,000 from the 1968 appropriation, the amount of the budget estimate, and an increase of \$2,023,000 over the House allowance.

The amount actually appropriated for the National Library of Medicine for 1968 was \$19,912,000. However, this amount does not include \$1,762,000 which was transferred to the National Library of Medicine when the National Medical Audiovisual Center was transferred from the Communicable Disease Center at Atlanta to the National Library of Medicine by the reorganization of the Public Health Service on January 1, 1967. The budget request for 1969 of \$19,172,000 includes \$1,962,000 for the National Medical Audiovisual Center. The comparable 1968 appropriation is, therefore, \$21,674,000, which includes the amount transferred from the "Communicable diseases" appropriation.

The budget estimate includes \$6,800,000 for grants under the Medical Library Assistance Act, a reduction of \$3,750,000 from the amount appropriated in 1968. The entire amount of the reduction is in construction grants. The committee feels that the budget estimate—which contains no new funds for construction and no increases over the 1968 appropriation for training, special scientific projects, research, library resources, regional medical library, and publications support grants—reflects the minimum level at which the National Library of Medicine can discharge its responsibility under the Medical Library Assistance Act. The request of \$6,800,000, together with \$3,886,000 brought forward from prior years, will provide \$10,686,000 in 1969 for medical library assistance grant support, a decrease of \$6,427,462 from the amount available in 1968. The reduced level of funding in 1969 will make it necessary for the Library to maintain the library resources and publications support programs at a reduced level but will provide, through utilization of carryover from 1968, modest increases in the training and special scientific project grant programs.

ducts and cooperates with others in scientific research activities dealing with mental illness.

Programs of the hospital are financed by Federal appropriations covering treatment and care of Federal beneficiaries and by reimbursements made to the hospital for services rendered other patient groups, principally residents of the District of Columbia. Federal appropriations to the hospital are of the indefinite type, under which the hospital receives in appropriated funds the difference between the reimbursements actually received during the fiscal year, for patient care provided by the hospital, and the total program costs approved by the Congress for the year.

In mid-August 1967, the Secretary of Health, Education, and Welfare announced the transfer of St. Elizabeths Hospital to the National Institute of Mental Health. In its new role, the hospital is to operate as a national demonstration emphasizing the methods used for reduction in size of a large mental hospital and the concurrent creation of community mental health services. The ultimate goal is to transfer responsibility for the care and treatment of all District of Columbia residents hospitalized at St. Elizabeths to the District government. The hospital will be continued as a Federal institution, however, until such time as its national demonstration role has been fulfilled and it has been transformed into an organization that can be operated optimally by the District of Columbia.

Although the appropriation is estimated to increase by \$346,000 in 1969, reimbursements are anticipated to rise by \$1,413,000. Total anticipated reimbursements for 1969 are in the amount of \$26,786,000.

Other than mandatory items, the increase allowed will provide for several small program improvements, including an upward adjustment in the patient-staffing ratio from 74 employees per 100 patients in 1968 to 80 employees per 100 patients in 1969.

#### BUILDINGS AND FACILITIES

1968 funds available.....	\$1, 237, 000
1969 budget estimate.....	1, 302, 000
House allowance.....	
Committee recommendation.....	

The committee concurs with the House action in eliminating the entire budget request of \$1,302,000 for this appropriation. However, the committee will have no objection to funding the projects proposed for renovation and improvement of the existing physical plant from the unobligated balances currently available in this account, provided it receives advance notice of any intended reprogramming.

#### NATIONAL HEALTH STATISTICS

1968 funds available.....	\$8, 264, 000
1969 budget estimate.....	9, 501, 000
House allowance.....	8, 230, 000
Committee recommendation.....	8, 230, 000

The committee concurs in the House allowance, a decrease of \$1,271,000 from the budget estimate, and a reduction of \$34,000 from the funds available in 1968.

The committee concurs with the House in supporting the program increase for regional medical library grants resulting from a carryover of funds from 1968, and recommends the full increase in research grants, also resulting from a planned carryover.

The committee commends the National Library of Medicine for its application of advanced computer technology to the problem of collecting, processing, and disseminating health information and concurs with the House in allowing an increase of \$1,054,000 for development and partial installation of a second-generation medical literature analysis and retrieval system (medlars II). The committee urges the Library to develop, within the limits of its resources, a Center for Biomedical Communications through which all elements of the health community may have ready access to information needed for its research, education, and service efforts.

## PUBLIC HEALTH SERVICE

### BUILDINGS AND FACILITIES

1968 funds available .....	\$10,715,000
1969 budget estimate .....	12,495,000
House allowance .....	
Committee recommendation .....	5,310,000

The committee has allowed \$5,310,000, a reduction of \$7,185,000 from the budget request, and \$5,405,000 less than the funds available for 1968. This would provide new funds for the construction of one priority project: the Appalachian Laboratory Health Field Station. The House action disallowed the entire President's budget request of \$12,495,000 because of the unobligated balance available in this account. So long as it is given advance notice of any such intended action the committee will have no objection to the reprogramming of unobligated balances carried forward in order to provide for projects included in the 1969 budget estimate.

The budget requested funds for the following major projects: construction funds of \$1,410,000 for an addition to the multilevel parking facility previously authorized to serve the general office building on the NIH reservation at Bethesda; repair and improvement funds of \$2,200,000 to prevent further building deterioration, replace obsolete equipment, and correct fire hazards in the Public Health Service hospitals; and construction funds of \$5,310,000 for the Appalachian Health Field Station at Morgantown, W. Va.

The committee has followed the progress of this latter project with great interest since its inception. Over the past few years, the major effort in dealing with the health problems of Appalachia has been restricted to the occupational health program's Appalachian Laboratory for Occupational Respiratory Diseases (ALFORD). One of the major reasons for this restricted activity has been the lack of space for program expansion. To overcome this problem, the Appalachian Health Field Station will provide for the expansion of ALFORD and the addition of other environmental health programs concerned with problems peculiar to the Appalachia region, including solid wastes disposal and control, recreational sanitation, housing hygiene, and domestic water supply and sewage disposal. While the major concern of these activities will be with health problems in the Appalachian

area, results of studies conducted at the new laboratory will be applied, as appropriate, throughout the United States.

The design phase of the project has now been completed, and it is anticipated that a construction contract can be awarded in September 1968. In order not to delay occupancy of the Appalachian Health Field Station beyond the current target date of May 1970, the committee has included \$5,310,000 for the construction of the Appalachian facility and strongly urges the Department of Health, Education, and Welfare to continue to afford this project the highest priority.

The bill would authorize the Secretary to accept a gift of the site for the facility by the board of governors of West Virginia University under a deed with a reservation of a right of reverter in the donor if the property should cease to be used as an environmental health facility. This provision is necessary to overcome the objection of the Department of Justice to acceptance by the Secretary of a deed subject to a right of reverter in the donor if the property ceases to be used as an environmental health facility. The committee understands that that Department's objection is a departure from precedent.

#### SCIENTIFIC ACTIVITIES OVERSEAS

1968 funds available.....	\$15,000,000
1969 budget estimate.....	30,000,000
House allowance.....	15,000,000
Committee recommendation.....	15,000,000

The committee concurs in the House allowance of \$15,000,000, a reduction of \$15,000,000 from the budget estimate and the same amount as available in 1968.

Under the Agricultural Trade Development and Assistance Act of 1954, as amended (Public Law 480), local foreign currencies derived from the sale abroad of surplus agricultural commodities may be used to support scientific research studies of substantive importance to the advancement of the health of the American people.

The allowance of \$15,000,000 will provide for approximately 55 projects in several well-established areas of research. These include basic research in cancer and cardiovascular diseases; studies in disease prevention; and translations of foreign medical records and journals. A fellowship program to allow U.S. medical students to study problems, method, and medical accomplishments overseas will be continued.

The allowance will make available about \$2,400,000 for approximately 20 projects in demography and other aspects of population and family planning.

In terms of geographic areas, the recommended appropriation will support projects in several countries, including Israel, India, Yugoslavia, and Poland.

#### RETIRED PAY OF COMMISSIONED OFFICERS

1968 funds available.....	\$13,800,000
1969 budget estimate.....	15,090,000
House allowance.....	15,090,000
Committee recommendation.....	15,090,000



Public Law 90-456  
90th Congress, S. J. Res. 193  
August 3, 1968

## Joint Resolution

82 STAT. 630

To designate the National Center for Biomedical Communications the Lister Hill National Center for Biomedical Communications.

Whereas, during his long and distinguished career in the Congress, Senator Lister Hill has achieved more forward-looking legislation relating to improved health and educational opportunities for the American people than any other individual in the history of this body; and

Whereas, Senator Hill's legislative interests in health, in education, and in libraries are epitomized in the National Library of Medicine, to whose establishment and development Senator Hill has paid particular attention during the course of his career; and

Whereas, a National Center for Biomedical Communications to be constructed and located as a part of this Library has been proposed by two legislators of the House, the late John E. Fogarty of Rhode Island, and Paul G. Rogers of Florida; and further that this Center has been strongly endorsed by representatives of the scientific community as an urgently required facility for the improvement of communications necessary for health education, research, and practice; and further that this Center would function to contribute enduringly to the life-long objectives of Senator Hill's legislative career: Be it therefore

*Resolved by the Senate and House of Representatives of the United States of America in Congress assembled,* That this Center be named and designated as the Lister Hill National Center for Biomedical Communications, thus perpetuating the name of the distinguished Senator from Alabama, and the legislative interests of his long and fruitful career in the United States Senate.

Lister Hill  
National Center  
for Biomedical  
Communications.  
Designation.

Approved August 3, 1968.

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CONGRESSIONAL RECORD, Vol. 114 (1968):

July 19: Considered and passed Senate.  
July 24: Considered and passed House.

90TH CONGRESS  
2D SESSION

# S. J. RES. 193

IN THE SENATE OF THE UNITED STATES

JULY 19, 1968

Mr. SPARKMAN introduced the following joint resolution; which was read twice, considered, read the third time, and passed

## JOINT RESOLUTION

To designate the National Center for Biomedical Communications the Lister Hill National Center for Biomedical Communications.

Whereas, during his long and distinguished career in the Congress, Senator Lister Hill has achieved more forward-looking legislation relating to improved health and educational opportunities for the American people than any other individual in the history of this body; and

Whereas, Senator Hill's legislative interests in health, in education, and in libraries are epitomized in the National Library of Medicine, to whose establishment and development Senator Hill has paid particular attention during the course of his career; and

Whereas, a National Center for Biomedical Communications to be constructed and located as a part of this Library has been



proposed by two legislators of the House, the late John E. Fogarty of Rhode Island and Paul G. Rogers of Florida; and further that this Center has been strongly endorsed by representatives of the scientific community as an urgently required facility for the improvement of communications necessary for health education, research, and practice; and further that this Center would function to contribute enduringly to the life-long objectives of Senator Hill's legislative career: Be it therefore

1       *Resolved by the Senate and House of Representatives*  
2 *of the United States of America in Congress assembled,*  
3 That this Center be named and designated as the Lister Hill  
4 National Center for Biomedical Communications, thus per-  
5 petuating the name of the distinguished Senator from Ala-  
6 bama, and the legislative interests of his long and fruitful  
7 career in the United States Senate.

90TH CONGRESS  
2D SESSION

## **S. J. RES. 193**

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### **JOINT RESOLUTION**

To designate the National Center for Biomedical Communications the Lister Hill National Center for Biomedical Communications.

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By Mr. SPARKMAN

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JULY 19, 1968

Read twice, considered, read the third time, and passed

NATIONAL SCIENCE FOUNDATION  
Office of Science Information Service  
Washington, D. C. 20550

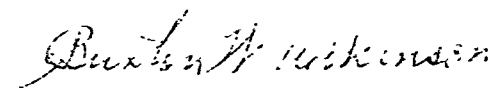
October 24, 1968

MEMORANDUM TO MEMBERS OF THE SCIENCE INFORMATION COUNCIL

SUBJECT: Transmittal of background material consisting  
of recommendations and conclusions of recent  
studies

The enclosed material consists of the recommendations and conclusions of the reports of recent studies by SATCOM, the National Committee on Libraries, and others. (See SIC 68-13, Summary of the 26th Meeting, September 30-October 1, 1968, p. 4). At the last Council meeting it was agreed that OSIS would provide these materials so that Council members may be individually informed concerning their impact on NSF's programs.

A draft Chapter 3 of the SATCOM report, which is not available at this time, will be sent later.

  
Burton W. Adkinson  
Head

Enclosures (5)

- "Report of the National Advisory  
Commission on Libraries - Summary  
of Objectives & Recommendations"
- "Recommendations for National Document  
Handling Systems in Science & Tech-  
nology," COSATI
- "Study of Scientific & Technical Data  
Activities in the U.S.--Volume I --  
Chapter V. Recommendations," Science  
Communication, Inc.
- "SATCOM Final Report - Draft No. 3, Chapter  
2 - The Recommendations in Brief"
- "A System Study of Abstracting and Indexing  
in the U.S. - Chapter 7 - Conclusions &  
Recommendations" System Development Corp.

## SUMMARY OF OBJECTIVES AND RECOMMENDATIONS

The fundamental recommendation of the National Advisory Commission on Libraries, on which further recommendations are based, is that it be declared National Policy, enunciated by the President and enacted into law by the Congress, that the American people should be provided with library and informational services adequate to their needs, and that the Federal Government, in collaboration with State and local governments and private agencies, should exercise leadership assuring the provision of such services.

### Objectives for Overcoming Current Inadequacies

- \* Provide adequate library and informational services for formal education at all levels.
- \* Provide adequate library and informational services for the public at large.
- \* Provide materials to support research in all fields at all levels.
- \* Provide adequate bibliographic access to the nation's research and informational resources.
- \* Provide adequate physical access to required materials or their texts throughout the nation.
- \* Provide adequate trained personnel for the varied and changing demands of librarianship.

### Recommendations for Achieving the Objectives

1. Establishment of a National Commission on Libraries and Information Science as a continuing Federal planning agency.
2. Recognition and strengthening of the role of The Library of Congress as the National Library of the United States and establishment of a Board of Advisers.
3. Establishment of a Federal Institute of Library and Information Science as a principal center for basic and applied research in all relevant areas.
4. Recognition and full acceptance of the critically important role the United States Office of Education currently plays in meeting needs for library services.
5. Strengthening State library agencies to overcome deficiencies in fulfilling their current functions.

**RECOMMENDATIONS FOR  
NATIONAL DOCUMENT HANDLING SYSTEMS  
IN SCIENCE AND TECHNOLOGY**

**Committee on Scientific and Technical Information  
(COSATI)**

**Federal Council for Science and Technology**

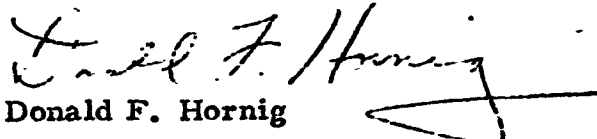
**November 1965**

*Encl. 2*

## FOREWORD

Because of the widespread interest in the long-range planning activities of the Committee on Scientific and Technical Information, I am making this report publicly available. I hope by this means to encourage active participation by nongovernmental groups in developing a more effective and efficient national network of information systems in science and technology.

I emphasize the advisory nature of the report. Its recommendations are currently being reviewed by Federal organizations and groups concerned with science and technology.

  
Donald F. Hornig

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY  
COMMITTEE ON SCIENTIFIC AND TECHNICAL INFORMATION  
Washington, D. C. 20506

15 November 1965

Dr. Donald F. Hornig, Chairman  
Federal Council for Science and Technology

As you requested, an ad hoc task group\* from the Committee on Scientific and Technical Information has endeavored to develop the conceptual framework for an improved national network of information systems in science and technology. This is the beginning of a comprehensive attempt to develop guidelines for planning, so that the information activities within each department and agency might be developed in a coordinated, nonduplicative manner. It is also expected that suggestions might be made to nongovernment organizations concerned with information in science and technology.

The reason for the study is the close relation between research and development and the information systems in science and technology. Although a good information system does not guarantee good research and development, the lack of a good information system may be harmful to effective and efficient research and development programs.

The job is not done. I take pride, however, in forwarding to you this report on the first phase of the study--dealing with the document-handling systems in the United States.

Respectfully submitted,



William T. Knox, Chairman  
Committee on Scientific and  
Technical Information

\*Task Group on National System(s) for Scientific and Technical  
Information:

William T. Knox, Chairman

Burton W. Adkinson

Walter M. Carlson

Melvin S. Day

Ellis A. Johnson

Foster E. Mohrhardt

Donald A. Schon

John Sherrod

Andrew A. Aines, Secretary

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APPENDIX A - Recommendations for National Document Handling Systems in Science and Technology - A Background Study - System Development Corporation, Sept. 1965.

APPENDIX B - Charter for Task Group on National System(s) for Scientific and Technical Information, Committee on Scientific and Technical Information, Federal Council for Science and Technology, Nov. 30, 1964.



## Background

Since 1957 and the dramatic launching of Sputnik I, much has been done in the Federal Government and in the private sector to learn more about the information systems undergirding science and technology, their problems and potentialities, and to develop mechanisms and programs to bring about more effective and efficient information systems. Two panels of the President's Science Advisory Committee issued widely-read reports, and two special task groups have added their thoughts and recommendations directly to the President's Science Adviser. Congressional committees, notably the Senate Subcommittee on Government Reorganization under the chairmanship of the then-Senator Hubert Humphrey, and the House Committee on Science and Astronautics under the chairmanship of Representative George Miller, through their thorough investigations of the role of information systems in research planning and coordination in Federal agencies, have stimulated agencies to take a number of progressive steps. Since the fall of 1957, a heightened awareness to the importance of effective and efficient information networks has evolved within the scientific and technical community and in the Federal agency management.

At the same time, the information problem has not grown less. Indeed, since 1957, the Federal Government has spent \$100 billion to support science and technology, and the results of this massive outpouring of dollars has been an equally massive flood of recorded information. Not all of this information is of equal value, but to decide on the valuable parts requires an increasingly large effort. Fuller exploitation and use of information is being emphasized to promote the growth of the national economy and the general health and welfare.

A number of recommendations have been made previously to ameliorate the information problem. Because of their relation to the recommendations presented in this report, a brief review follows of the major conclusions and recommendations of three prominent advisory reports--the Baker, Crawford, and Weinberg reports--as they relate to document handling.

### Baker Panel (1958) <sup>1/</sup>

Arising out of its conclusions that "progress in science is dependent upon the free flow of scientific information," and that "publication of research information is absolutely essential," the Baker panel recommended the

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1/ W. O. Baker, et al, Improving the Availability of Scientific and Technical Information in the United States. Panel Report of the President's Science Advisory Committee, 7 Dec. 1958.

establishment of a Federal science information service, to assist and coordinate existing programs of government agencies and private organizations for short-term relief, and to encourage and support a long-term research and development program. The Baker report pointed out that within the National Science Foundation there was an organization (subsequently called the Office of Science Information Service) which could be bolstered to carry out these functions. The Office of Science Information Service has gradually enlarged its functions, and in FY 1966 its budgeted program amounted to \$12.5 million. Major emphasis has been given to the support of primary and secondary publications and to translations of the foreign technical literature. In addition, OSIS has supported, through the traditional NSF grant mechanism, a large number of research and development projects in science information and information systems.

Crawford Task Force (1962) <sup>2/</sup>

In 1962 Dr. Jerome B. Wiesner, Science Adviser to the President, appointed a special task force to examine Federal information programs. The task force made two major organizational recommendations designed to improve the flow of recorded information within the Federal Government, as follows:

- (1) A central authority should be established to:
  - (a) define objectives of government information programs
  - (b) plan, develop, and guide organization of government information activities
  - (c) develop criteria (including financial) for effective operation of government-wide information system
  - (d) review and evaluate performance of Federal agency information systems
  - (e) provide systems research, engineering and development
  
- (2) Each research and development agency of the Federal Government should set up an office exercising agency-wide direction and control of information activities.

The central authority, which the Crawford Task Force recommended to be the Office of Science and Technology, has not been established. However, the Office of Science and Technology assigned a full-time staff member to information systems beginning in 1963. Numerous inter-

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<sup>2/</sup> J. H. Crawford, G. Abdian, W. Fazar, S. Passman, R. B. Stegmazier, Jr., and J. Stern, Scientific and Technical Communications in the Government. Task Force Report to the President's Special Assistant for Science and Technology. AD-299-545, Apr. 1962.

agency information problems have also been identified by the Committee on Scientific and Technical Information since its establishment in 1963, and several interagency standards have been developed. Since the Committee on Scientific and Technical Information is, however, an interagency advisory committee, development of criteria for agency information programs and evaluation of these programs are beyond its capability.

The recommendation that each research and development agency establish an office exercising agency-wide direction and control of information activities has largely been implemented. The three agencies most heavily involved in science and technology--the Department of Defense, the Atomic Energy Commission, and the National Aeronautics and Space Administration--have large information programs. While the Department of Defense has no statutory obligation to disseminate its internally-generated information to the public, it has tried to keep its far-flung contractor community (numbering some 20,000 in the United States) supplied with an effective information network. Both AEC and NASA have a statutory obligation to disseminate information generated through their operations to the public. As a result, AEC and NASA have well-organized science information functions as part of their line organizations.

Weinberg Panel (1963) <sup>3/</sup>

The Weinberg Panel of the President's Science Advisory Committee recommended that "Each Federal agency concerned with science and technology must accept its responsibility for information activities in relevant fields, and must devote an appreciable fraction of its talent and other resources to support of information activities." This recommendation has failed to find general acceptance. Some Federal agencies, such as AEC and NASA, had already accepted their responsibilities as integral parts of their missions, and were devoting significant talent and other resources to support of information activities. Nevertheless, there are broad areas of science and technology outside the fields of nuclear energy and space exploration. There are also areas of science and technology in which nongovernment groups have performed effectively for many years, overlapping in some cases the purview of Federal agencies. The reluctance of some Federal agencies to accept responsibility for areas of science and technology is understandable; there has been no determination by the Congress that the Federal Government has the responsibility for ensuring the existence of a healthy information system covering all of science and technology.

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3/ A. M. Weinberg, et al, Science, Government, and Information: The Responsibilities of the Technical Community and the Government in the Transfer of Information. Report of the President's Science Advisory Committee, 10 Jan. 1963.

## Statement of the Problem

In late fall, 1964, the time was ripe for another attempt to fashion a more effective and efficient national network of information systems in science and technology. A special task group from the Committee on Scientific and Technical Information was established at the request of Dr. Donald F. Hornig, the President's Science Adviser, and Chairman of the Federal Council for Science and Technology. As is made clear by the task group charter (Appendix B), a very ambitious task was undertaken. The task was no less than the design of a national information transfer system or network of systems which would serve the needs of practicing scientists and engineers and their managers in such a way as to promote the more effective and efficient execution of the national research and development program.

From the beginning, the task group looked upon its assignment as a systems engineering problem. Initial attention was focused on that part of the system dealing with document handling. Left for later analysis were the less-well defined areas of initial distribution of research and development results, secondary services, critical information analysis and evaluation functions, and the important oral communications network that exists throughout science and technology.

The task group was assisted in its study of the national document-handling system by the System Development Corporation. A comprehensive analysis of the national document-handling network, and recommendations for its improvement are included in the System Development Corporation report (Appendix A). The report contains a wealth of valuable information, and its evidence, its conclusions, and its recommendations were considered at length by the task group. The task group recommendations differ considerably from those presented by the System Development Corporation, although there is general agreement with the System Development Corporation statement of basic propositions or assumptions, and systems requirements. These differences are described in more detail in the "Recommendations" section of this report.

## Basic Assumptions

Notably lacking in most of the proposed national "plans" for an information system in science and technology has been a clear statement of the basic assumptions underlying the plans. This lack has vastly complicated the ensuing discussion and debate. The basic assumptions or propositions on which the Committee on Scientific and Technical Information task group has built its statement of the national system(s) requirements and its recommendations for action are outlined in the following paragraphs.\*

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\*The statement of assumptions is nearly identical with the corresponding statement in the System Development Corporation report (Appendix A); these assumptions were, in fact, largely formulated by the System Development Corporation, starting from the position reached by the Committee on Scientific and Technical Information task group after several months study of the national information system(s) problem.

1. The Federal Government has the responsibility to ensure that there exists within the United States at least one accessible copy of each significant publication of the worldwide scientific and technical literature.

In some areas of science and technology, such as medicine, agriculture, aeronautics, and nuclear energy, Federal Government agencies have already been charged by the Congress to assume this responsibility, because of the relation to national goals and agency missions. In other areas the responsibility may be tacitly accepted, subject to the administrative judgment of agency management. This assumption states clearly the Federal Government responsibility for ensuring access to significant literature in all areas of science and technology.

Federal agencies would be expected to accept this responsibility because the successful completion of their research and development missions requires the existence of effective and efficient information systems in science and technology. Although some agencies, as mentioned above, have provided such information systems, other agencies have relied on the initiative of nongovernmental groups to provide the necessary information systems. Only a few nongovernmental groups have been able to cope with the new demands and the vastly-increased volume of information, and even these have been aided by government support.

Acceptance of this responsibility is in harmony with Federal Government acceptance of the responsibility for ensuring adequate trained manpower in science and engineering, and for ensuring an adequate level of basic research in the United States. Basic research and education in the sciences and engineering are intertwined, as the President's Science Advisory Committee (Seaborg) report <sup>4/</sup> stressed, and they both feed on and in turn nourish the published literature.

In the words of President Kennedy, "One of the major opportunities for enhancing the effectiveness of our national scientific and technical effort and the efficiency of Government management of research and development lies in the improvement of our ability to communicate information about current research efforts and the results of past

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<sup>4/</sup> "Scientific Progress, The Universities, and The Federal Government," Statement by the President's Science Advisory Committee, Wash., D. C., 15 Nov. 1960; Panel on Basic Research and Graduate Education; Glenn T. Seaborg, Chairman.

efforts. Strong science and technology is a national necessity and adequate communication is a prerequisite for strong science and technology." <sup>3/</sup>

The phrase "significant publication" needs elaboration. There is no intent of trying to relate completely the significance of new published knowledge to current goals and objectives, although such relation should be, and is, an essential part of every scientist's and engineer's perusal of the current literature. Rather, it is recognized that bona fide knowledge about the laws of nature may find application in a number of unexpected uses, some long after the original publication. Significant, then, refers mainly to knowledge acquired and reported in a scholarly, professional manner.

There is an obverse side to this definition of "significant;" it implies that there are insignificant publications. Few, if any, scientists and engineers will debate this. In the words of a nuclear physicist recently, "This book served me by focusing my attention on the torrent of bad books that is presently flooding the scientific market. It made me ask myself why we fill our library shelves with frequently worthless books." <sup>5/</sup>

The acceptance by the Federal Government of responsibility for ensuring an accessible copy of all significant literature in science and technology carries with it an acceptance of the necessity for providing criteria for recognizing and eliminating from Federal library collections the insignificant literature. Nonfederal libraries may also benefit.

This assumption also implies that there must be a comprehensive national listing and index of documents held by the major libraries. Indexing of some of the serial literature in science and technology (excluding medicine and agriculture) has traditionally been done by some scientific and engineering professional societies, and will probably continue. Acceptance of the responsibility by the Federal Government for maintaining a national listing and index of documents carries with it a greater degree of coordination and support of the documentation activities of the scientific and engineering professional societies than heretofore.

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<sup>5/</sup> "A Book Which Shall Remain Un-Named," Lawrence Dresner, Reviewer. Excerpt, p. 274, v. 22, #2, June 1965, Nuclear Science and Engineering.

An "accessible copy" implies that a copy or reproduction of the original will be available in reasonable time, without unusual efforts by the requester.

"Scientific and technical" literature is broadly conceived. Not only should the physical and life sciences be included, but also the behavioral and social sciences. Technology is likewise broadly defined.

2. The Federal Government has the responsibility to see that there is appropriate acquiring, announcing, processing, and making accessible the significant worldwide scientific and technical literature to qualified individuals and organizations in the United States.

This assumption elaborates on the first assumption, and spells out the functions required in the document-handling system. While there may be objections voiced on first reading "qualified" individuals, experience shows that some screening of requesters will be necessary to promote the principle of local access to the literature. In the absence of screening, as the experience of the National Library of Medicine clearly shows, a centralized Federal document facility can be overloaded with requests which can be equally well-handled from local facilities.

This assumption does not carry with it the implication of universal free accessibility to the literature, but service fees should be kept at a level which optimizes the use of the system in relation to its operating costs. There will be a basic operating cost for the system regardless of the number of users. However, the cost of servicing requests for literature copies is almost directly related to the number of requests. Effective and efficient management of the system will require as skilled marketing techniques as it will require skilled production methods.

3. Any system(s) must take account of primary publication (e. g., books, serials, pamphlets, reports) and secondary publications (e. g., indexes and abstracts) and the processing of these.
4. Information centers are a permanent part of any national system(s) for handling scientific and technical information.
5. A critical part of the scientific and technical information system is in the nondocument area, such as oral communications, conferences, and symposia.

Although this report makes no recommendations for action in this area, this assumption is included because informal

means of communication are very important to the working scientist and technician. The products of meetings, symposia, etc., enter the document system as proceedings or reports and would be handled like any other document. The Committee on Scientific and Technical Information task group intends to study this area in detail.

6. There will be important portions of the national information system(s) (e.g., publishers, abstracting and indexing activities, research libraries) independent of the Federal Government. The impact of the Federal portion, in terms of subsidy, cooperative services, and leadership, will have an important influence on the nonfederal portion, and this relationship must be continuously explored and defined with the Government taking such actions as are necessary to maintain a viable system.

In the words of the President's Science Advisory Committee (Weinberg) report <sup>3/</sup>, "Government involvement in scientific communication is going to grow, just as Government involvement in science and technology is growing. We must always seek to insure on behalf of both the Federal Government and the technical community, that the Federal information system remains adequate but does not overwhelm the existing non-Government systems, and that our Government and non-Government systems continue to develop into an effectively interwoven instrument that is always responsive to the changing needs of our science and technology."

7. The document-handling system(s) will service a wide variety of users, including, among others:

Scientists, technical personnel, scholars and students working in university settings;

Scientists and technical personnel working privately in industry and in the Government;

Administrators and managers.

Document-handling systems must not only satisfy the needs of the different categories of users, but are required to recognize the problems involved in information transfer between types of users within the same profession. Within a community of research scientists communication of research results takes place easily and rapidly. However, there may be severe difficulties in transmitting research results from the scientist to the engineer, especially on intricate and interdisciplinary problems.

8. The introduction of advanced technology into the national document-handling system is required. Ultimately, the growth in number of



documents and their representations will be so great the problems of cost, storage space, preservation of documents, and indexing will become so large that the present manual systems will become inadequate.

9. The cost-effectiveness ratio for introducing new technologies into the document-handling system needs to be determined in terms of the services rendered. Different technologies may also be evaluated in terms of system cost for an equivalent amount (in quantity and quality) of information transfer.

This assumption recognizes that new technologies in document handling--as in many other service activities--tend to cost more than the system or procedures they replace. The offsetting benefits must be gained from improvement in the performance of the scientists, engineers, and other technical personnel who are served by the document systems.

10. Any systems proposed must be evolutionary in character in the sense that they will start with the present systems such as libraries and information exchanges and evolve to forms which will be consistent with an overall plan. There must be flexibility for new organizational and administrative arrangements.
11. The systems developed for the scientific and technical literature need not necessarily be compatible with systems used for other parts of the world literature, such as law, the arts, and humanities. For instance, the indexing, cataloging, processing, and storage systems for scientific and technical literature may be different from that for other literature.
12. Classification and indexing schemes adopted for our national systems will be as compatible with international procedures and standards as is feasible.

#### General Management Requirements

1. Overall policies and plans concerning the Federal Government's role in scientific and technical information activities, including document handling, need to be developed, and the implementation of these policies and plans needs to be coordinated and monitored.
2. Policies and recommendations are required concerning the legislative bases for document and information services in or sponsored by the Federal agencies, which will identify and clarify agency roles in national information systems.

As a previous Committee on Scientific and Technical Information study has shown, legislative authority and responsibility given to Federal agencies for information systems and services varies widely. The development of more effective and efficient national information systems is seriously hampered by the lack of consistent legislation.

3. More definitive guidelines are required for cost and budgetary analysis and control of agency information services.

For the past several years, the Committee on Scientific and Technical Information and the National Science Foundation have endeavored to develop costs and budgetary data for agency information services. While progress has been substantial, there are large gaps in the data. A major part of the costs of agency information services and support has to be estimated, due mainly to the integral relation of information transfer (communication) to research and development itself. The Committee on Scientific and Technical Information task group recognizes the interwoven nature of scientific communication and research and development. Nonetheless, it also recognizes the potential benefits in planning, coordination, and evaluation which will result from the availability of better cost data. The establishment of good cost data is also a valuable aid for the planning and evaluation of proposed new systems aimed at increasing the productivity of its users.

4. A central review is required of each agency's budgetary program for document and information services as it relates to the national system(s).
5. Central coordination is required of the development of long-range plans for the national document-handling and information systems, including plans for the establishment of facilities serving various elements of the system, such as central referral (or switching) facilities and research project registries.

These requirements are elaborations of the first requirement, and spell out two of the mechanisms for coordination and review of the total Federal program.

### Systems Requirements

The following list of systems requirements is not intended to be comprehensive, but instead highlights those general requirements which form the basis of the task group conclusions and recommendations. For

a more comprehensive list, the reader may refer to the System Development Corporation report (Appendix A, pp. 4-7 to 4-17). The task group has reviewed the System Development Corporation list of systems requirements, and takes no exception to them.

1. A number of large-scale experimental information and document-handling programs will be required in order to determine detailed design data for an integrated national network of systems.

Implicit in this requirement is a requirement that the system evolve from the present situation. The 1965 Office of Science and Technology (Licklider) Panel on Scientific and Technical Communications stated in its report, <sup>6/</sup> "It is not the time, yet, to design a national system for scientific and technical communication. It is the time to start developing an overall conceptual framework for a national system; a plan to guide research and development. Moreover, it is time to build experimental or exploratory systems capable of handling actual problems and perhaps of growing or evolving into operational systems." The Committee on Scientific and Technical Information task group agrees with this statement. The MEDLARS project at the National Library of Medicine, the network of state-based information centers to be established under the State Technical Services Act of 1965, the Atomic Energy Commission and National Aeronautics and Space Administration computer-based abstracting and indexing services, the new computer-based chemical information system of the Chemical Abstracts Service, and the numerous information evaluation and analysis centers are all examples of large-scale information transfer experiments which will lead to improved systems design and integration.

2. A continuing effort will be required to harmonize the demands of the information producer and user for maximum flexibility in language usage with the system needs for standardization.

Many organizations, both inside and outside the Government, are promoting greater standardization of language. Such activities have made possible the present document-handling systems, and the inadequacies of the present systems are most glaring in those sectors of science and technology which have not made the requisite effort to standardize language usage. Increasing usage and increased mechanization of document-handling systems will require

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<sup>6/</sup> 8 Feb. 1965 Report to Dr. Donald F. Hornig, Director, Office of Science and Technology, by Office of Science and Technology Ad Hoc Panel on Scientific and Technical Communications; J. C. R. Licklider, Chairman.

increased standardization; the costs associated with massive revision of information already placed in machine-processable form are great. The newer document and information-handling systems will also be expected to provide more error-free retrieval.

3. The system will require intensive participation and involvement by those producing and using scientific and technical information, extending to the actual operation of information and document-handling facilities by scientific and engineering organizations.
4. There is a requirement that users and students be knowledgeable about the functions, interrelations, and general methods employed by the system. Educational and training programs will be required.
5. Capability to conduct research on information systems will be required, and staff units possessing this capability should be a part of every major unit in the national network of systems.
6. The system will require the acquisition of at least one reproducible copy of every significant foreign and domestic document and making them accessible while minimizing unnecessary acquisition and translation.
7. The system scope will embrace all fields of scientific and technical literature.

The Committee on Scientific and Technical Information task group believes that the responsibility for ensuring coverage of the scientific and technical literature should be assigned among Federal agencies in a coordinated fashion. The assignment of agency responsibility should be clear. It is not the intent of this statement to mean that Federal agencies would operate the completed system, but only that they will have responsibility for ensuring complete coverage by some government or nongovernment organization.

8. The system will require policies and programs for the long-term preservation of its document holdings. This requirement influences policy with regard to the loan, reproduction, and distribution of documents to qualified requesters.
9. The system will also require that responsible agents develop policies and programs aimed at purging the system of unneeded information.

To assist the retirement of information from the active system store, a more comprehensive program is needed to develop reviews, monographs, textbooks, movies, and

other teaching aids, involving incorporation of the new knowledge into the accepted body of knowledge.

10. Each system within the national network should have its own index, switching center and referral apparatus. In addition, there is an urgent need to determine the most appropriate form of switching center for the national network as a whole.
11. Decentralized local access to documents and information is required to meet the needs of a geographically dispersed user population.
12. Compatible methods for processing and servicing requests for documents need to be developed.
13. The system must have the capacity to handle a 5-6% annual increase in significant documents by 1970 and a doubling every ten to fifteen years. \* An increase in translation capacity will also have to be provided.
14. Policies are required concerning Federal support for professional societies related to their effective functioning as a part of any national scientific and technical document-handling system, particularly their activities in abstracting, indexing, reviewing, and dissemination.
15. There is a requirement to ensure that sufficient numbers of adequately educated and trained personnel for operating the national system are available. This includes categories such as librarians, information technologists and scientists, and clerical personnel.

### Conclusions

Based on the considerations and evidence presented in this report and its appendixes, and building on the basic assumptions or propositions and on the systems requirements presented in the preceding sections, it is concluded that:

1. Effective information transfer and document-handling systems in science and technology are necessary, but by themselves are not sufficient for the optimal conduct of Federal research and development programs. Federal agency managements should be concerned

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\*Supporting data for this quantitative system requirement are given in the System Development Corporation report (Appendix A).

about the effectiveness and efficiency of these systems, as they affect the pursuit of national goals and agency missions. Just as "the strength of the research and development programs of the major agencies, and hence their ability to meet national needs, depends heavily on our university system," <sup>7/</sup> so it may be said the research and development programs depend heavily on the document-handling systems in science and technology.

2. Existing information and documentary services, including libraries, have been established and have proliferated without benefit of guidelines from a national interest point of view, as to scope of coverage, quality of service, cost of service, and relation to other services. As a result, there are wide variations in the quality and quantity of information and documentary services available in different sectors of science and technology.
3. There is need for an integrated national network of document-handling systems in science and technology. It is difficult to prove conclusively that inadequacies in the present complex of documentary services have caused poorer science and technology, because there are nondocumentary avenues for obtaining information. Nevertheless, the evidence of inefficiencies in and inadequate services from the present complex of documentary services, when compared to some efficient, effective, and much used services, convinces the task group that an integrated national network of libraries and other document-handling systems covering all fields of science and technology should be brought into being.
4. It is too early to plan in detail such an integrated network. However, it is not too early to plan in general terms, and to begin the evolution of the present "system" into a more effective system.
5. Because of the Federal Government's major involvement in science and technology, the Federal Government should assume the leadership in the evolution of the information and document-handling systems network.

There must be, however, close cooperation and coordination with nongovernment services. The contributions of these organizations and enterprises are vital to the effective transfer of information, and their talents and resources should be utilized and strengthened.

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<sup>7/</sup> Memorandum from the President to the Heads of Departments and Agencies, dated September 14, 1965.

6. The following functions should be undertaken by a central Federal mechanism, working in concert with Federal agencies and non-governmental groups, to develop the integrated national network:
- (a) define the subject areas, in addition to medicine and agriculture, for which individual Federal departments and agencies may accept responsibility for ensuring effective national information and document-handling systems
  - (b) develop Federal policies for
    - support of and cooperation with nongovernmental libraries
    - support and sponsorship of specialized information centers in science and technology
    - operation and support of government depository libraries
    - support of nongovernment publications
    - support of communications by means of nondocumentary mechanisms (e. g., meetings)
    - education and training of librarians and information technologists
    - acquisition and translation of foreign documents
    - copyrights and patents in information "software" and the new information transfer technologies
  - (c) review, in relation to the needs of the integrated national network, agency information budgets and programs
  - (d) propose legislation necessary for the integrated national network
  - (e) review, in view of the needs of the integrated national network, agency legislative proposals
  - (f) develop minimal technical and performance standards for Federal information and document activities
  - (g) develop guidelines for costs and other statistical information about Federal information and document activities
  - (h) coordinate agency programs for Federal support of prototype information systems of advanced design leading toward the integrated national network
  - (i) develop and maintain long-range plans for the integrated national network, modifying these plans in the light of changing needs, costs, technologies, manpower, and facilities
7. The Office of Science and Technology, with the advice and assistance of the Committee on Scientific and Technical Information, should

begin the exercise of the above functions in selected areas of science and technology, to test the practicality of the centralized-mechanism-plus-responsible-agent concept. The task group concludes that at present no organization other than the Office of Science and Technology can successfully undertake this assignment, and that a successful trial would provide a sound basis for further steps requiring new executive or legislative action.

In this conclusion, the task group differs with the System Development Corporation report, which recommends the immediate establishment of a new independent agency as the centralized mechanism. The task group believes the Capping Agency and Responsible Agent concepts recommended by the System Development Corporation require a clear demonstration of their desirability and practicality. The task group is aware of the problems which may arise from asking that the Executive Office of the President undertake, on an experimental basis, the central mechanism function suggested above.

The task group agrees with the System Development Corporation in rejecting the alternate proposals involving (a) a new Federal agency or government chartered corporation to operate a centralized facility for all significant scientific and technical documents, and (b) creating such a centralized facility under the management of the Library of Congress. The arguments for and against the alternatives are presented in the System Development Corporation report (Appendix A, Volume I).

8. Responsibilities for ensuring, either internally or through other mechanisms, the effective operation of the document-handling subsystems in fields of science and technology should be discharged through existing Federal departments and agencies as an integral part of their research and development program. This includes the establishment, if necessary, of new organizational entities, such as switching centers and libraries for fields in science and technology.
9. New information systems are currently coming into being; some are under design, and a few, at the national level, are in the process of experimental operation and modification. It is important that both costs and effectiveness of these new communication systems be recorded and evaluated from their very beginnings. The cost and the effectiveness should be compared between various new systems, as well as with existing traditional and evolving systems.
10. Sufficient data exists from existing information systems to permit the development of crude but valuable models of possible new



national communications systems. Several alternatives of an overall design of a comprehensive national information system should be initiated without delay. The various costs, to include costs of installation, operation, and personnel, the relative effectiveness, and the potential benefits of the several alternatives should be estimated. The results and experience gained from the design model should permit manipulation of the design variables of new sub-systems and thus guide their specific design and the evaluation of the overall system.

### Recommendations

It is, therefore, recommended that:

1. The Office of Science and Technology should accelerate its efforts on the overall planning, policy formulation, organization, coordination, and evaluation of the integrated national network of information and document-handling systems in science and technology. The Office of Science and Technology should take appropriate steps to clarify areas of responsibility among the Federal agencies in this area.
2. The Office of Science and Technology, in collaboration with the Bureau of the Budget, Federal departments, agencies, and other organizations involved in science and technology, should undertake the following tasks at once:
  - (a) To develop a comprehensive, coordinated program for ensuring the acquiring, cataloging, and announcing of the significant worldwide scientific and technical literature. The establishment of one or more national libraries in fields of science and technology in addition to medicine and agriculture, under the aegis of appropriate Federal departments and agencies should be considered as elements of the integrated national network.
  - (b) To develop policies concerning the legislative bases for document and information services in or sponsored by the departments and agencies.
  - (c) To propose or endorse legislation necessary to enable departments and agencies to assume responsibility for ensuring effective information and document-handling services in agreed-upon areas of science and technology.
3. The Office of Science and Technology, in collaboration with appropriate Federal agencies, should encourage the private sector to

formulate document-handling plans and programs for its consideration (and for review by appropriate agencies) in the development of the integrated national network.

**4. The Committee on Scientific and Technical Information should recommend actions in the following areas:**

- (a) A new task to be undertaken is the development of a coordinated plan and criteria for Federal support of experiments in the technology of information science, including prototype information systems designed to provide design data for the integrated national network.**

**Continuing tasks of high priority are:**

- (b) The development of standard procedures for processing documents so that interagency exchange can be more efficient and comprehensive.**
- (c) The development of guidelines for cost and budgetary analyses and control by agencies of their document and information services.**
- (d) The development of education and training curricula for the operators and users of the document and information systems.**
- (e) The development of policies for acquisition, dissemination, translation of unclassified foreign documents in science and technology, and the dissemination of Federally-produced information and data to foreign countries and organizations.**

November 30, 1964

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY  
COMMITTEE ON SCIENTIFIC AND TECHNICAL INFORMATION

CHARTER

for

Task Group on National System(s)  
For Scientific and Technical Information

GOALS AND OBJECTIVES

The Task Group will:

1. Undertake those investigations needed to (a) inventory and evaluate the resources (people, libraries and other services, equipment, materials and funds) currently being utilized in national and other domestic scientific and technical information activities, and (b) ascertain the information needs of users such as: scientists, engineers, managers, practitioners, and the technical public, as individuals and as groups, in and out of the government.
2. Based upon these and other findings, prepare recommendations and plans for the development of national information system(s) to include actions for government agencies, suggestions for actions by the private sector, and steps to move from current to advanced information systems.

APPROACH AND SCOPE

The Task Group will undertake such studies as are necessary to provide requisite knowledge for its deliberations. Because of the varied interests and specialized knowledge of groups not directly represented on the Task Group, such as librarians, abstracting services, commercial publishers, and professional societies, it is the intent of the Task Group to call on representatives of such outside groups for information and suggestions. An illustrative list of problem areas includes:

1. Determine why and how the scientist, practitioner, manager and the technical public assimilate and use technical information and identify trends that in practice and under certain environmental conditions may change these use patterns.
2. Examine the relationships between producers, processors, wholesalers, retailers, users, and systems of scientific and technical information. The study should seek to obtain such data as numbers of each type involved, size of operation, characteristics, trends, problems, economics, efficiency of effort, and education and training requirements. Both present and future aspects should be analyzed and evaluated.

APPENDIX B

3. Identify and evaluate a series of independent proposals for scientific and technical information systems presented in the last few years, considering for application those elements which appear to have immediate or future value for advanced information systems.
4. Analyze present and proposed national information systems which range from centralized to decentralized for costs, performance, resource requirements, impact, copyright and proprietary right problems, and methods of financing.
5. Examine other information systems in operation or under development of sufficient importance to the scientific and technical information community to warrant close coordination.
6. Consider the development of national information systems in relation to international scientific and technical information trends and patterns.
7. Review the state-of-the-art pertaining to equipment s, facilities, techniques, organizations, as related to existing and potential national information system(s).

## V. RECOMMENDATIONS

### A. Basic Assumptions

The specific recommendations, presented on the following pages, for study and implementation of national data system concepts are based on certain assumptions which are implicitly stated throughout this report. Basic to all the recommendations is the assumption that the Federal Government has the responsibility to ensure effective management and utilization of the nation's rapidly growing resource of scientific and technical data. This responsibility involves more than making significant scientific and technical documents available to potential users; merely providing document sources does not assure that data are effectively communicated or conserved for future use. This assertion concerning Federal responsibility subsumes the view that scientific and technical information is a vital national resource: a resource to be utilized in the most effective manner by all professions, industries and agencies; and one that must be maintained in the best possible working order if its potential and optimal benefits are to be exploited. Moreover, it is assumed that scientific and technological progress will suffer if the corpus of scientific and technical data is not systematically and adequately maintained in a functional form. Progress is also inhibited if the means for communication of data are not continuously improved in order to meet the scientific and technological community's needs as expressed in contemporary requirements. Meeting the challenge and opportunity to construct new and effective means of treating data is one of the most crucial problems facing science and technology today. The challenge is based on the realization that the opportunity exists to build superior systems by utilizing today's new tools, techniques, and knowledge and, in so doing, greatly extend the utility of scientific and technical data. It is this challenge, more than the fear of being inundated by the flood of data that should prompt the search for new means to handle data more effectively.

It is also assumed that national systems for management and handling of scientific and technical data are now evolving from the efforts already in existence within many scientific communities and agency missions. The role of the Government is to focus on these present efforts, to coordinate them, and to provide data management policies on a broad national scale. The possibility of a highly centralized direction of national data systems is neither feasible nor desirable. What is needed is not a unilateral system created by a Government fiat, but the creation of order within the current process of national data

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systems development. Incentives must be provided for an orderly development, most specifically in the form of Federal funds made available to elements of the evolving systems to enable them to develop their potential effectively.

The development of an effective national data system should not conform to one monolithic blueprint. Rather, the national system will evolve to satisfy specific requirements of "real" communities in science and technology. Some data management and handling programs or systems will probably be subject oriented, some process oriented, some mission oriented, and some by a combination of these when they exist within a "real" community of scientists or technologists.

Since data management is in the midst of a significant transition and will continue to be so for some time to come, it is important that the transition be more fully understood as to its nature and importance. Greater characterization of the transition will help to enlist the resources required to guide it in the direction most beneficial to our national scientific and technological efforts.

National data systems will not constitute a new activity so much as an effort to get better organized and do a more effective job of data management in both the public and private sectors. For this effort to be successful, objectives must be articulated, priorities established, responsibilities assumed, and resources allocated.

It is assumed that advanced technological methods and equipment are essential to the concept of national data handling systems for the future. Therefore, the Federal Government must provide national data system policies flexible enough to allow for effective introduction of technological change, and provide financial support to assure timely application of appropriate equipment capabilities. Although new technologies in data handling tend to cost more initially than the methods and equipment they replace, the benefits gained in improved performance of scientists and technologists can be expected to offset the increased equipment cost. Valid cost-effectiveness ratios are difficult to obtain in this context, especially during the conceptual and developmental phase; consequently, such ratios should not be given over-riding consideration in decisions relative to introduction of new technologies to national data systems.

The following recommendations for study and implementation of national data system concepts are presented in the context of these assumptions. They also reflect a firm commitment to the idea that our nation is capable of controlling its future through conscious choices.

## B. Policy Recommendations

To the present, there has been no overall Federal policy toward data handling systems and data management, nor has there been a focal point from which direction could be sought. There is, however, a critical need, today, for the formulation and promulgation of Federal policies because, as this preliminary study has demonstrated, there exists throughout the country much activity in the design and operation of data handling efforts. Moreover, rapid changes in technology, new tools and methods, promising new concepts in data transfer, and the necessity to further consider national systems make it incumbent upon the Federal Government to provide the initial emphasis and direction if an orderly and effective use of the national data resource is to be achieved.

The scope of this study did not include consideration of policies for other than the Federal Government. However, it was observed that non-governmental organizations, especially the professional societies and trade associations, need to re-examine their current policies relative to their responsibilities in the management and handling of scientific and technical data. In general, it appears that these organizations must become more aware of the needs of their members, and become active in considering what actions can be taken to meet these needs.

### 1. The Federal Government Should Encourage the Recognition of Scientific and Technical Data as a National Resource Susceptible to Systematic Management.

Recognition of data as a resource provides a valid perspective from which the management of data and the design and operation of data handling systems can be approached. More importantly, this perspective provides a fuller appreciation of all aspects of the problem of data handling. It brings into focus not only the access and communication aspects, but also those vitally important functions of conserving, maintaining, and refining the data. These latter functions are extremely important to the scientific and technical communities.

Data should also be recognized as a national resource of concern to the entire country. Because the United States has made a considerable commitment to the generation of data, it must also see to it that it is properly maintained and managed if its greatest utility is to be achieved. The establishment of a national index or inventory of scientific and technical data should be an integral part of the implementation of this policy.

2. The Federal Government Should Establish a Policy Position that Initiation of National Data System Development is Now Timely and Should be Undertaken as Part of a Broad National Scientific and Technical Data Program.

There are many pilot studies and programs for national data systems networks covering specific scientific and technical disciplines. There are other systems being proposed and planned on the state level independent of any consideration of the potential development of a national systems network. There are also plans for national document handling systems, but as yet, there is no plan for national data handling systems, nor is there a plan that includes both data and document handling systems.

The Federal Government is in the position to provide the leadership and direction that will assist these various efforts to converge toward a future national system or system of subsystems. This can be done by supporting a national program which would have as its primary objective improved management of the national data resource and a supplemental objective of development of national data handling systems.

3. The Federal Government Should Encourage the Evolution of a National Data Handling System Through a Program of Decentralized Planning and Development Efforts.

Such an approach is in contrast to the centrally planned and directed system. The reason for a decentralized approach to the development of a national system or set of interconnected systems is that this approach is more likely to generate true definitions of system requirements. In addition, an extremely fluid state exists in the fields of data management and data handling systems design. This



condition is due primarily to the rapid change in technology and the still experimental nature of practically all large-scale data handling systems, as well as the nascent stage of data management. So many new approaches and methods are being tested in the field of data handling that, if given time, the more successful of the new approaches and methods will become evident, especially if they are tested in limited, local, but real data activities.

4. The Federal Government Should Create a Means for Coordinating Developments in the Design of Large-Scale Data Management and Data Handling Systems and Networks in the United States.

Ths purposes of such a policy are numerous:

- (1) To provide a sorely needed focal point for nationwide data activities through which guidance, direction, and information can be sought;
- (2) To support and develop those prospects that have promising applicability to national systems;
- (3) To identify areas of duplication and areas that are not now being served; and
- (4) To give overall direction to the evolution of a national system by identifying broad data management objectives and by developing broad planning concepts. In doing so, emphasis should be placed on the identification of effective management and systems approaches as they develop through the scientific and technical community. Because large-scale data handling systems are only now entering the concept-definition phase, it is important that the best approaches be identified now, even if this requires a delay in achieving cost optimization. As part of such a program, the Federal Government should assume the responsibility to identify, evaluate, and make available information concerning techniques, methods, and equipment applicable to the development of data management and data handling systems.

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5. The Federal Government Should Stress the Development of Intra-Community Data Management and Data Handling Systems, Rather Than Inter-Community Programs and Systems.

Emphasis should be given to bringing about effective and viable data-handling systems on a nationwide, intra-community level. Once knowledge is gained as to which system configurations best answer the problems of various communities, this information can be applied to inter-community systems development. Too little is now known concerning the types of data to be exchanged between various communities or the extent of exchange that should take place. Further development on the intra-community level will help to provide the necessary information for this second phase of national systems development by identifying valid structuring concepts, efficient equipment configurations, etc.

6. The Federal Government Should Recognize the Different Types of Data Activities in Science and Technology and Establish Policies Commensurate with this Recognition.

This study has attempted to show that problems of data management and data handling differ significantly among discipline-research activities, mission-development activities, and applications-product activities. For each of these areas, the types of data, the needs for it, and its users differ. Specific developmental policies are therefore required for each of these areas. Also, each of these types of data activities must be provided a voice in determination of the goals, functions, and structures of national data systems.

7. The Federal Government Should Place Greater Stress on the Husbandry and Use of Existing Data.

The current Federal policy is oriented toward supporting the generation of new data over and above making use of existing data. This policy is evident in the Government's funding programs, where insufficient funds are made available to see that the data generated is fully utilized. The support policies of the Government should require that the data generated in Government programs is handled so as to conserve its potential utility and the data are made accessible for other uses. A policy should be promulgated whereby Federal agencies engaged in scientific and technical research and development would designate a minimum percentage of their total budget for data management and handling.

8. The Federal Government Should Acknowledge in its Policy Formulations Both the Difference and Interrelationship Between Data Management Programs and Data Handling Systems.

Data management includes those policies, procedures, and actions used for coordinating and directing efforts to determine data needs, generate data, and handle data in a manner which permits optimal use and conservation. An assembly of procedures, personnel, and equipment interacting to perform operations on data (recording, reduction, dissemination, etc.) constitutes a data handling system. Basic policy recognizing and giving due consideration to this distinction will materially assist the Government in its efforts toward development, management, and use of our national data resource. Such recognition will aid significantly in bringing together the diverse talents and skills, not only of systems designers, but also of scientists and technologists, required to formulate and implement effective data management and handling systems.

9. The Federal Government Should Support the Development of Programs and Data Systems Which Aid a Given Scientist or Technologist to Interact More Effectively With His Own Data.

Too frequently, data systems are viewed as the means for communicating data between scientists or technologists remotely situated either geographically or institutionally from one another. In fact, many of the data-related problems faced by the scientist or engineer involve the handling, evaluation, use, etc. of data at his work station - frequently, data which he generated himself. Therefore, national data systems should be viewed as extending to this level if they are to make major contributions to science and technology. Federal policy should include support of systems development efforts directed at the day-to-day working needs of the scientist or technologist, as well as systems directed to the less frequently encountered needs for remote communication of data.

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10. The Federal Government Should Better Define Responsibilities for Policy Formulation and Coordination of International Data Activities.

The key requirement is not for redefinition of responsibilities for conduct and direction of U.S. involvement in international data efforts. The main problem is that the attention given by responsible offices has not kept pace with the growing level and importance of international data activities. Existing offices in the National Science Foundation, Department of Commerce, State Department, etc. need to be strengthened not only to permit them to better represent U.S. interests, but also to enable them to establish better communications and working relationships with on-going data activities in the U.S. Means must be found to apply the best of our national skills to formulate national positions which consider the many factors important in establishment of international data systems. Particular effort must be made to avoid unilateral actions by specialized scientific or technical communities. Currently, much international data activity involves multi-nation efforts to collect data on a worldwide basis. These data will constitute the data base which future international data systems must handle. Consequently, it is critical that such activities be planned and conducted on the most informed basis possible.

11. The Federal Government Should Adopt a Policy of Encouraging the Private Sector of the Economy to Develop Data Handling Systems and Innovative Data Management Techniques.

In doing so, the Federal Government should encourage professional societies and industry to develop data systems within their own communities. These systems should maintain and conserve the corpus of knowledge for those subject areas. In order to stimulate data system development in selected areas of the private sector, the Federal Government should support the initial planning and development efforts. As these systems advance to an operational status, the Federal Government should decrease its support to allow the economics of the marketplace to serve as a criterion of effectiveness.

Policy concerning support of data system development in non-government communities should recognize and acknowledge the realities of public and commercial interests in data activities. The Federal Government, therefore, should support to a greater extent discipline-research activities as opposed to applications-product activities.

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12. The Federal Government Should Establish a Policy to Encourage the Accessibility of Scientific and Technical Data to as Many Potential Users as Possible.

Such a policy should not conflict with full recognition of the property rights of individuals or organizations. Rather, it would be promulgated with a specific delineation of private data (data which an individual or organization does not desire to disclose or release), proprietary data (data which the owner or possessor will release under prescribed conditions such as payment of a fee), and public data (data for which ownership and possession is in the public domain). Government support should be given to efforts for removal of the economic barriers which result in data being restricted when, in fact, the owner or holder has no objections to release of the data. In particular, the Federal Government should establish policies required to assure that data generated at Government expense are more accessible to other potential users.

13. The Federal Government Should Encourage Greater Recognition of Information or Data Handling Systems as an Integral Part of the Total Information Transfer Process.

In the past, concentration on increasing the effectiveness of document handling systems (including libraries) has overshadowed the efforts of handling data to the extent that data handling systems have hardly been recognized as part of the scientific and technical information management and transfer process. This narrow concept or picture of the function of information systems must be redrawn to include data handling systems and data management as a major part of the process of information transfer. It is vitally important that this more inclusive view of information systems be made widely known so that those who are considering doing something about their information problems will be aware of the various possibilities open to them.

Data handling systems go beyond the normal concept of document handling systems, in that they are more closely tied to the actual daily working environment of scientists and technologists. In this sense, they are more like the other tools used in the daily course of work, and therefore, are not considered within the legitimate province of the scientific and technical information program of the organization, nor of the information systems design specialist.

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## CHAPTER 2

### THE RECOMMENDATIONS IN BRIEF

This chapter summarizes the recommendations of the report, quoting those of greatest importance and offering only the briefest background. It exists for the reader who wants only to get an overview of the report. The reader who is interested in individual recommendations should turn to Chapter 3, "The Recommendations Discussed".

Underlying the Committee's recommendations is a basic philosophy - a fabric of guiding principles - which in almost every instance has provided the test of acceptability for these recommendations. The unabated exponential growth of science and technology and the massive industrial and government support which currently sustains the existing high level of activity have resulted, respectively, in broader management responsibilities and the availability of substantially larger resources in the field of scientific and technical communication. As a basic principle, the Committee believes that the soundest possible development of scientific and technical communication will be achieved if the institutions exercising these responsibilities, and the policies guiding their efforts, provide for effective contact and communication and ensure a democratic balance of influence among the managers of information programs, the prospective users of their services, and the generators of the information in the field. The mechanisms which SATCOM proposes or endorses for the improved management of scientific and technical communication efforts -

*Encl. 4*

and most of its key recommendations deal with this aspect - have been chosen because they appear, in our judgement, to meet these requirements effectively. The organizations which so far have done most toward establishing the required environment of productive communication and democratic balance of influence are: (a) the scientific and technical societies, through their arrangements for the participation of information users and generators in the management of their information programs; (b) the science and technology dependent agencies of the Federal Government, managing their information programs in response to the needs of in-house professional staff and contractor teams; and (c) the commercial houses whose efforts are coupled, through market forces, to the wants of their information producing and using clients. Hence, these organizations and their future development, individually and in concert, figure prominently in the recommendations of SATCOM.

There follow three corollary principles to which SATCOM subscribes, relating respectively to:

1. The Role of the Federal Government. Every government agency should support the scientific and technical information activities which are required in the accomplishment of its missions. In addition, the Federal Government must inevitably provide substantial support, through certain of its agencies, to scientific and technical information efforts in the public interest. Clearly such support cannot be extended without the exercise of responsible management and control. Scientific and technical communication plays such a central role in the conduct and application of research and development that the support of a discipline's information services should not be more concentrated, as an institution-

alized policy, than is the support for the conduct and application of that discipline's research and development. In the context of this principle, the scope constituting a discipline should be determined by the natural conduct of technology and science, rather than by the mission structure of the Federal Government.

2. The Function of Economics. The costs of scientific and technical communication are expected to increase both absolutely and as a fraction of the total research and development effort, and our recommendations recognize the strong dependence of both the scope and the time scale of further developments in this field on economic factors. Consequently, we emphasize the use, where appropriate, of market forces as an empirical guide and of cost-effectiveness determinations as analytic aids in efforts to arrive at a sound economic basis for such prospective investments.

3. The Impact of New Technologies. The Committee anticipates continued incisive changes in all aspects of scientific and technical communication, resulting from the techniques of inexpensive and rapid photoduplication, both at full scale and in microform, and - over a radically different, open-ended time scale - from the modern electronic computer systems in combination with ever more effective communication facilities. We consider it important that the interactive processes in the management of scientific and technical communication take place in an intellectual environment open to imaginative innovation and fostering the exploration and testing of new adaptations. It is equally important to give proper weight, on the operational level, to the organically evolved capability of existing information service structures to deal



effectively with many needs and constraints, a capability which newly conceived systems, slated to replace them, will develop only gradually.

This principle applies with particular force to computer-dependent innovations which undoubtedly will play dominant roles in the information systems of the future. Our planning today for this future requires a vigorous program of research and exploratory development. For the present, however, there remain deep and real differences of opinion with regard to the time and manner in which these major roles will be realized. SATCOM urges, therefore, that, in addition to those who press for early radical innovations, those who warn against allowing existing services to fall apart before new ones can effectively replace them must continue to be heard in management councils of scientific and technical information programs.

### A. Problems at the National Level

The information activities of the United States are - fortunately, we feel - pluralistic and diverse; however, the need for effective planning and coordination continues to increase rapidly. Accordingly:

Recommendation A1: We recommend the establishment of a National Commission on Scientific and Technical Communication, responsible to the National Academy of Sciences and the National Academy of Engineering. The prospective Commission should be a group with as broad a representation as feasible of the major scientific and technical communities and the principal kinds of organizations engaged in related information handling activities. The Commission should be supported by a professional secretariat, and it should function under a charter whose terms derive from the Act of Congress under which the National Academy of Sciences operates and which recently served to establish the National Academy of Engineering. This Commission should be responsible for leading the private sector in the coordination of its interests and programs and in the development of broad and far-sighted plans. It should also be responsible for working with appropriate government groups in formulating needed national policies and programs, and for gaining their broad acceptance. (A variety of specific tasks for the Commission are indicated in later recommendations.)

This pluralistic system has many advantages, leads to significant economies, and reflects deeply rooted principles and traditions of this country's scientific and engineering community. Accordingly:

Recommendation A2: Effectiveness and economy demand a basic philosophy of shared responsibility between the private sector and the Federal Government in the management of scientific and technical information. In this sharing, the major scientific and technical communities should exercise leadership in improvement and management, recognizing the place of their activities as part of a national aggregate of endeavor, in which the government also plays a major role. Equally, all government agencies should look to organizations of the relevant scientific and technical communities for a major share in the management of the information services upon which their activities rely.

The policies of the National Science Foundation, which has made it its declared objective to provide, in part through the incentives of

support, the greatest possible scope for the major scientific and technical communities in the improvement of scientific and technical communication, offers an outstanding example of this basic philosophy, one that can serve as a pattern for other government agencies.

Further highlighting the distinctive parts which we expect private sector and federal activities to play, we make:

Recommendation A3: We recommend that, as a guiding principle, all government sponsored scientific and technical information programs directed in major part to workers outside of government service, or to workers in government whose activities are similar to those outside, should, in whole or in part, be managed by the appropriate societies or institutions jointly created by such societies. The national libraries provide outstanding exceptions to this principle.

We recommend, accordingly, that a government-wide policy be developed by the Federal Council for Science and Technology which states that agencies engaged in setting up and operating mission-oriented information programs shall use and, if necessary, up-grade or stimulate the initiation of the privately operated basic information services which can serve as component elements in such programs.

Recommendation A4: In consonance with the above recommendation, we call on the Federal Council for Science and Technology to extend its 1961 policy statement, revising it to embrace, as integral to the sponsorship of research and development, not only the publication but also the processing of the information so generated for access, consolidation, and use in education, training, and application.

As the Federal Government undertakes major new tasks in such mission areas as the management of natural resources, environment control, the development of transportation systems, and urban renewal, it enters fields in which information management is unusually important. Our recommendation A5 deals with the management of scientific and technical information in such contexts.

Information transcends national boundaries - in its sources, in its handling, in its use. Accordingly:

Recommendation A6: The policy making groups of our scientific and technical societies must encourage the managers of their major information agencies to develop ways in which access and transfer activities can operate on a more truly international basis through sharing the work across national boundaries.

Three additional recommendations - A7, A8, and A9 - supplement our Recommendation A6 and propose ways by which federal agencies and international research programs can foster effective cooperation among nations in scientific and technical communication.

The principles of copyright currently are undergoing reexamination - belatedly from many points of view, but at a very early stage so far as the newest technologies are concerned. Study is needed. Accordingly:

Recommendation A10: SATCOM endorses the statutory establishment of a national commission to study and report on the impact of the new information transfer technologies on copyright principles. At the present intermediate stage in the development of information handling technology, only a flexible and evaluative approach can provide an adequate basis for future legislation which will best satisfy the conflicting needs for broad and rapid accessibility of information, maintenance of incentives, and protection of investments in copyrighted resources.

Standards and standardization can greatly aid or seriously hamper information activities. Consequently, our Recommendation A11 is in the nature of a measure for maintaining alertness and providing incentives to agreement.

#### B. Unfilled Needs of the User

It is not enough to publish, abstract, and index information, it needs to be critically examined, filtered, and consolidated into forms

that its users can assimilate easily and effectively.

Recommendation B1: Scientific and technical societies must develop, propose, and assist in implementing ways through which needs for critical reviews and data compilations are identified and their efficient preparation is carried out. They should also stimulate education in the use of such reviews and awareness of their existence.

Recommendation B2: Sponsors of research and development should recognize their responsibility to provide for the preparation of critical reviews and data compilations. In most cases, this will involve the investment of a larger fraction of their resources in this activity than heretofore.

Our recommendations B3 and B4 supplement the above by indicating specific responsibilities of sponsors of major research and engineering programs and of the proposed Commission on Scientific and Technical Communication in this area.

The degree to which this nation or the world can promote hand-tailored information services is one of the most crucial decisions about information and its handling. Groups of even one or two thousand people with similar needs can be specifically served at costs that will bring greater national returns. Services for such groups are all too often lacking.

The lack of adequate services is, unfortunately, most striking and crucial for large groups of practitioners. Accordingly:

Recommendation B5: Each society or association, many of whose members are concerned with practice, especially in engineering, medicine, and agriculture, should greatly increase its emphasis on information programs which will:

1. Insure that access, awareness, and appraisal services, comparable to those provided for the body of the research literature, are provided also for publications of particular interest to the practitioner - such as textbooks, monographs, handbooks, manuals, patents, trade journal publications, company reports, catalogs, and specifications.

2. Stimulate the production of critical reviews and surveys of contemporary fields of knowledge, the condensation being focussed on particular domains of application of interest to the practitioner and being adapted to his needs.

3. Identify types of data banks, including such diverse types as those illustrated by Ring Doc, Sweets Catalog, Toxicology Information Data Bank, etc., which need to be established in their respective fields, establish required data banks, and provide an indexed inventory for existing ones which describes coverage and conditions of access.

4. Meet the needs resulting from requirements of continued education to keep practitioners in their respective fields up to date.

In doing this, each society or association should give particular attention to those components of their membership concerned with practice.

Most of the smaller need groups, except those served by individual small societies, lack specialized services. New organizational structures will be needed to bring these services into existence and to maintain them. Accordingly:

Recommendation B6: Each larger scientific or technical society or association should assist and encourage its natural subdisciplinary groups to organize for and initiate the conduct of appropriate need-group services.

Learning how to operate such services with maximal efficiency will require the best efforts of all concerned, as will the relatively difficult task of communicating one group's experience to the many other parallel groups; in particular, there will be important roles for the National Commission, for users and sponsors, and for a program to advance know-how and intercommunication. Our Recommendations B7, B8, and B9 address themselves to these areas.

If abstracting services are to contribute freely and effectively to the effort to adapt specialized services to need groups, it must become

economically feasible for them to transfer their products at reasonable cost, so that the specialized services may reprocess them appropriately.

Accordingly:

Recommendation B10: Those societies and agencies concerned with the conduct and support of abstracting services should seek actively to identify difficulties, find solutions, and take the initiative in proposing and testing arrangements through which an increasing contribution by the sponsors of research to the input costs of the basic abstracting services can make transfer for reprocessing financially possible at more nearly output costs.

Our Recommendations B11 and B12 give further emphasis to the responsibilities of abstracting services and of scientific and technical societies with regard to the reprocessing of information for use, and Recommendation B13 deals with the problem of guiding users of diverse backgrounds and varying information needs to the appropriate services.

The existence of Information Analysis Centers, which accumulate and process for access and use sizeable bodies of information in particular areas, affords opportunities for greater service, especially as they can be made more responsive to the needs of their potential users. Considerable attention to their functioning will be required on a continuing basis, especially by the National Commission (Recommendation B14).

Efficient use of our information resources can benefit from closer attention to certain aspects of management, especially performance evaluation and marketing techniques, subjects with which our Recommendations B15 and B16 are concerned.

### C. The Classical Handlers of Information

The need for more specialized service is great, but it would be a serious error for this need to be met at the expense of the classical

processes of information handling: (a) the abstracting and indexing services; (b) the storage, bibliographic control, and document delivery functions of libraries; (c) the formal and semiformal publication of scientific and technical information; and (d) the more informal information-exchange mechanisms of meetings.

Our major recommendation concerning basic access (discipline-wide abstracting and indexing) services deals with the federal role, seeking to maintain all sources of strength:

Recommendation C1: The departments and agencies of the Federal Government should fund the literature access services that are needed for the effective utilization of the knowledge resulting from both the research and the technical activities which they sponsor. In doing so, they should, to the greatest practical degree, ensure:

- Management of basic abstracting and indexing by the appropriate scientific and technical societies or federations thereof;

- Management of broad bibliographic services by private for-profit organizations, national libraries, or societies.

Additionally, scientific and technical societies and editors of their primary publications have key roles to fulfill. Accordingly:

Recommendation C2: The scientific and technical societies should play their responsible part in the basic abstracting process, forming federations where appropriate, learning to increase timeliness where necessary, and treating repackaging of their material by others as normal and desirable. (See Recommendation B10).

Recommendation C3: Editors of primary publications should make it a general policy that each item submitted for publication be accompanied by an author-prepared and referee-reviewed "documentation unit". (More detail is given in Chapter 3.)

Further, there is need to enhance the usefulness and uniformity of documentation units that are now, or will be, prepared as part of



primary publications, an area treated in our Recommendation C4.

Libraries, especially those in universities and colleges, play an important role in information handling and appear to require federal assistance along the lines suggested in Recommendations C5 and C6.

Formal publication is an essential link, not only in today's information system but in any we foresee. Its character may change, but its function must be carried out. Changes in technology and in degree of specialization continue to be rapid. Moreover, supply and demand relations for scientific and technical information depart greatly from the pattern of standard economics. Accordingly:

Recommendation C7: We see the need for a systematic analysis of the economic aspects of formal scientific and technical publications as they will prevail during the next five to ten years. This study should examine all the income returned to such publications from their principal markets - users, authors, and the public - together with trends in cost factors and the impact of new technology, to serve as a basis for the development of flexible funding and pricing policies which, in a changing environment, should be responsive to the needs of each of the interested parties without being unduly responsive to any.

Minimally required for making research and development useful is that its results be published. The cost of publication must, therefore, be considered an integral part of the costs of research and development. Accordingly:

Recommendation C8: It must remain the established policy for governmental or private sponsors of research to provide, as an item inseparable from the cost of such research, funds for an appropriate part of the publication process; we strongly advocate the continuance, as a matter of policy, of the provision of funds by sponsors of research and development for "page charges", i.e., payments requested by journals from contributors and normally approximately covering the editorial and setup costs of the publication process.

As times change, so also must primary publication, in order to meet such pressures as the contracting time scale of advance in many fields of science and engineering. Accordingly:

Recommendation C9: Systematic efforts must be made to improve the quality and timeliness of formal publications by professional and scientific organizations and other publishers. Lag times in publication of as much as a year must be considered intolerable. We believe that at present competently refereed publication is nearly always possible in half a year or less, and that advancing technology will make further time reductions possible.

Our recognition of the need for more experimentation with the dissemination of primary papers and the use of modern technology in their production and distribution is covered by our Recommendations C10, C11, and C12.

Informal publication of documents - especially through preprints, technical reports, and the circulation of manuscripts among interest groups - continues to grow rapidly. Expanded reliance on informal publication leaves many individuals unaware of the existence of significant documents relevant to their activities, or unable to obtain those of which they learn. Conversely, the attractiveness of such publication, in its present largely informal mode, is not high enough to reduce commensurately the pressures on formal publication. To maintain the benefits of informal communications, while reducing their evils, over-extensive distribution of informal documents should be curbed (a variety of measures are discussed in Chapter 3), and a suitable portion of these documents should be selected for semiformal status. Accordingly:

Recommendation C13: The scientific and technical societies should give careful attention to needs and practices in the circulation of the various forms of

of informal communication (report literature, preprints, newsletters, etc.), should subject this material, somewhat selectively, to bibliographic control, and should be prepared to supervise its distribution to whatever extent is necessary to preserve a proper balance between the advantages of broader availability of semiformal publications and the health of formal archival journals. Here "bibliographic control" refers to orderly announcement and, in those cases involving circulation to a significant number of people of substantive information not scheduled for formal publication, the provision of indexing, abstracting, and availability in a central depository.

Federal agency contributions to the effectiveness of semiformal communication through sharpened procedures in technical reporting are the subject of Recommendation A14.

Scientific meetings play a major part in the creation and transfer of scientific and technical information. Accordingly:

Recommendation C15: National and international meetings can constitute an essential and effective basis for scientific and technical communication. Their predominant role can and should be given a more objective confirmation than the present intuitive backing. Societies and other groups sponsoring such meetings must acquire better insight into which of the many purposes served by meetings contribute most to their activities, and must provide the appropriate logistic arrangements and measures of quality control. Moreover, the great economic advantages of large meetings as ways to combine meetings of overlapping interest groups should be further enhanced.

Further responsibilities of societies in the dissemination of information which facilitates scientific and technical communication are the focus of Recommendation C16.

#### D. Personal Information Communication

The vital role of face-to-face discussion and other personal interaction, although intuitively taken as a matter of course by the practicing scientist or technologist, is now being clarified formally through systematic study. Our fragmentary understanding limits what can be said

on the subject at this time. However, our Recommendations D1, D2, and D3, on the subjects of personal encounters at meetings, exchange visits, and intraorganizational mobility of professional personnel in complex organizations, suggest measures to facilitate productive personal communication.

#### E. Studies, Research, and Experimentation

Endeavors to become increasingly knowledgeable about the functioning of the aggregate of information activities must be pursued with vigor and at a level of effort in proportion to the investment in these activities. In particular, understanding of cost effectiveness relationships - now almost nonexistent - should be of great help in the future planning and management of scientific and technical information programs.

Recommendation E1: Under the overall guidance of the proposed Commission and of COSATI, appropriate organizations should initiate and carry out comprehensive analyses of and experiments on the functioning of the different parts of the network of scientific and technical communication, as well as of the network as a whole. It should be a long-term policy to provide adequate funds for such studies, and scientists or technologists of abundant experience and imaginative insight should always be active participants.

Further considerations, regarding the scope and conduct of these studies, are the subjects of our Recommendations E2 through E10. Among them, we single out two as of immediate importance in fostering progress in scientific and technical communication.

Recommendation E6: The National Science Foundation should fund one or more experiments in which a small, widely used, single-interest-area file is subject to evolutionary indexing by authorized users who are permitted to make additions, modify the structure, and insert critical commentaries. One attractive approach

is to perform such experiments on a real-time computer system.

Recommendation E8: On-going activities, directed toward the development and evaluation of languages for describing the formats of files as well as of alpha-numeric and other digital communication, are of immediate and key importance to scientific and technical communication. Accordingly, the National Science Foundation should cooperate with other federal agencies pursuing active programs in this area - especially the Advanced Research Projects Agency - to ensure rapid and coordinated progress. In particular, an evaluation program for a file-format language should demonstrate, as soon as possible and for an extensive set of samples, computer conversion from one format to another.

We recognize a major need for carefully planned, large-scale experiments directed to critical issues, serving multiple purposes whenever possible. Accordingly:

Recommendation E10: In addition to supporting programs of basic research in scientific and technical communication as well as research and development in this field more directly supporting the missions of individual agencies, the Federal Government should establish a single group to plan a unified program of critical experiments of operational scale in scientific and technical communication and to find, guide, and support contractors in the conduct of these experiments.

## CHAPTER 7

## CONCLUSIONS AND RECOMMENDATIONS

In previous chapters, many specific conclusions have been drawn out particular aspects of the present situation in abstracting and indexing. The purpose of the present chapter is to present several general and more encompassing conclusions resulting from this study, as well as a number of recommendations that logically follow from them. Because it has become evident that there is a lack of sufficiently objective data to permit confident recommendation of specific technical alternatives, the recommendations presented tend to be largely of a programmatic nature. Nevertheless, they are felt to be implementable and valuable steps toward achieving an improved document representation capability.

## CONCLUSIONS

1. The present ad hoc "system" for abstracting and indexing in science and technology is beset by a number of problems shared by three major entities: the user, the A&I services, and the Government. The system also has many limitations, both with respect to current needs and to future requirements. The problems of the various system elements interact with each other in sufficiently complex ways to preclude easy or immediate solutions.
2. The present system does not appear to contain within itself the resources or mechanisms to meet either the current problems or future requirements. No mechanism now exists that is sufficiently representative, independent, and effective for purposes of marshalling Federal and non-Federal thinking in a joint attack on problems relating to document representation systems.
3. The Federal Government has a responsibility to take the initiative and apply its available resources to the planning of an adequate document representation subsystem. Moreover, the primary basis for such involvement is the statement of the Federal Government's responsibility contained in the 1965 CCATT report for guaranteeing the acquisition, announcement, processing, and accessibility of the significant worldwide scientific and technical literature.
4. Any national document representation system must be viewed as a subsystem within the framework of a national document handling system. It, therefore, cannot be considered for design and implementation separate from or prior to a national document handling system. One cannot conceive a national document handling system without a document representation subsystem to provide the tools for bibliographic control, announcement and location of documents.

Encl. 5

5. There is a lack of reliable data on the characteristics, cost and utility of particular types of document representations and even on the cost of the development of such data. There is, therefore, no adequate basis for recommending modification of current practices of the reproduction services. No preferred system configuration or encoding mechanism can be supported with sufficiently firm data to warrant a major change at this point in time.

6. The technical competence, financial investment and historical involvement of the non-Federal sector in the area of document representation is such as to make it imperative that the organizations in this sector participate actively in the planning and subsequent operation of the national document representation subsystem.

#### RECOMMENDATIONS

The following recommendations call for immediate action by COSATI and were developed with full consideration of the mechanisms, information and resources currently available. The recommended actions are designed to provide evolutionary improvements to present practices and to foster the identification of the significant data required to assess the need for and potential value of major change.

1. COSATI should review and endorse the present report as a means for developing a well-focussed dialogue among the parties who are legitimately concerned with the implications of a national document representation subsystem. The report should be published and distributed to them with the understanding that it is a first-stage analysis of the document representation situation and that thoughtful and detailed reaction is essential.

2. COSATI should seek endorsement of the requirement statements in Chapter 4 of this report as guideline principles for a national document representation subsystem and, therefore, as significant desiderata bearing on the design of an overall national document-handling system for science and technology.

3. COSATI should sponsor and recommend support of a conference of appropriate non-Federal abstracting and indexing organizations to sharply increase communication and cooperation among those organizations, to serve as a forum for review and comment on current plans, and to discuss establishment of mechanisms for further exchange.

4. COSATI should sponsor and recommend support of detailed studies to accelerate the development of criteria and methodology for measuring the cost/effectiveness of alternative representations and, thereby, to support the development of adequately based standards.

5. COSATI should sponsor and recommend support for investigations of the utility of special types of representations such as periodic critical reviews and state-of-the-art studies to determine the possible need for and value of a more extensive, formalized program calling for information services to produce such studies in their area of competence on a scheduled periodic basis.

6. COSATI should sponsor and recommend support of studies for assessing the cost/effectiveness of alternative methods for the preparation and distribution of document representations.

7. COSATI should sponsor and recommend support of studies to devise standard cost recording procedures down to the unit preparation level for document representations and work for agreement in such recording at least across all Federal agencies.

8. COSATI should accelerate the preparation and publication of a firm set of concepts for the national document handling system, since concurrence on the overall plan is a prerequisite to document representation subsystem planning.



## Administrative Management Report

The following topics will be discussed by Mr. Russell in more detail at the meeting:

### Space and Physical Plant

The original design of the NLM building did not anticipate many of the uses being made of the space today. Future requirements, such as NMAC and LHNCBC, as well as anticipated growth of Library Operations, cannot be met in our present space. Future expansion will require a move to commercial or government space until such time as an additional building is constructed. Our most optimistic estimate for completion of new construction is April 1973.

### Implementation of The Revenue and Expenditure Act of 1968

This Act required an expenditure reduction of \$6 billion from the 1969 President's Budget and limited Federal employment to 3/4th of losses until the June 1966 level of employment is reached. The impact to date on the NLM has been a \$1.1 million cut from the President's Budget by Congress. Since Congress cut only about one-half of the required \$6 billion, further reductions have been made by the Executive Office. The NLM was not affected by the first round of these cuts, but more may be made. Employment has been controlled by NIH based on projected losses. We are currently authorized to hire 39 employees during the fiscal year. Our projected losses are 55. We began the year with 494 full time employees and on November 1 we were down to 486.

### Report on the GAO Management Audit of Library Activities

In October 1967 a team of General Accounting Office personnel moved in to the NLM to conduct the first audit of our activities ever performed by that organization. We have been told that no formal "findings," (discrepancies) will be reported, but that two reports will be issued, one addressing the question of user charges and one discussing all other activities. If these reports are received prior to the Board meeting they will be discussed.

### Establishment of an NLM Contracting Function

In March 1968, the Director was delegated the authority to negotiate and sign contracts. Prior to this delegation NLM contracting was carried out by the National Institutes of Health under their authority. We have hired an experienced contracting officer, Mr. Kenneth Styers, and will be developing new contracts within NLM. Extension and renewals of existing contracts will continue to be handled by NIH. We expect to award approximately \$3.5 million in project contracts this fiscal year.

### Staff Training Activities

Since the Government Training Act of 1957 made it possible to support job-related training for Federal employees, the Library has participated in a variety of training programs within NLM, at other Government agencies, and at the local universities. In FY 1967 we supported 171 employees in training status varying in duration from three days to one year.

## LISTER HILL NATIONAL CENTER FOR BIOMEDICAL COMMUNICATIONS

(1) Designs, develops, implements, and manages a Biomedical Communications Network; (2) assists the biomedical community in identifying and developing products and services for dissemination through the network; (3) develops networks and information systems to improve health education, medical research, and the delivery of health services; (4) applies technology to the improvement of biomedical communications; (5) represents DHEW in Federal activities related to information communications activities; and (6) serves as the focal point in the Department for development and coordination of biomedical communications, systems, and network projects.

### OFFICE OF THE DIRECTOR

Plans, directs, and manages the activities of the Center.

### RESEARCH AND DEVELOPMENT BRANCH

(1) Sponsors and conducts research and development in biomedical communications, to improve the means of communication in the health sciences and in the Biomedical Communications Network (BCN); (2) identifies applicable technology for the improvement of biomedical communications; (3) conducts and sponsors research and development in document and information handling networks, in graphic image storage, retrieval, and transmission, in query languages, and man and machine communications; (4) applies operations research techniques to the BCN planning and operations; and (5) provides consultative services regarding application of existing and advanced technology to biomedical communication problems.

### NETWORK ENGINEERING, COMMUNICATION AND OPERATIONS BRANCH

(1) Supervises engineering and technical operation of the network; (2) provides technical guidance to Center operators and provides technical management/supervision of contractors; (3) develops design and engineering requirements for additions/improvements to the network; (4) develops and maintains maintenance record report system, network/Center engineering diagrams and facility layouts; (5) develops support procedures and supervises their implementation; (6) coordinates and provides liaison for network engineering and operation; (7) operates RISC; (8) determines and applies quality control procedures to technical aspects of BCN operations and (9) designs test and evaluation procedures.

### NETWORK PLANS AND MANAGEMENT BRANCH

(1) Plans biomedical communications, information systems, and network projects; (2) coordinates the biomedical communications projects and network activities of DHEW; (3) cooperates with the user community in the planning of products and services to be provided by the components of the

9/27/68

BCN; (4) determines technical feasibility of providing user-specified services and the geographic configuration of the network; (5) plans for the development of the Biomedical Communications Network and DHEW biomedical information projects, including application of existing and advanced technology to improvement of biomedical communications; (6) establishes standards for BCN components and DHEW biomedical information systems; and (7) provides consultative services in long range planning for meeting biomedical communication needs.

#### CUSTOMER PRODUCTS AND SERVICES DEVELOPMENT BRANCH

(1) Identifies products and services to meet the communication needs of the biomedical community in the areas of information and education through continual contact and cooperation with agencies, organizations, and members of the biomedical community; (2) coordinates the activities of the Center in the development and implementation of products and services to meet the requirements of organizations or groups using the network; (3) assists the biomedical community in the fullest utilization of the Network.

THE LISTER HILL  
NATIONAL CENTER FOR  
BIOMEDICAL COMMUNICATIONS

THE LISTER HILL  
NATIONAL CENTER FOR  
BIOMEDICAL COMMUNICATIONS  
OFFICE OF THE DIRECTOR

RESEARCH AND  
DEVELOPMENT  
BRANCH

NETWORK ENGINEERING,  
COMMUNICATIONS AND  
OPERATIONS BRANCH

NETWORK PLANS AND  
MANAGEMENT  
BRANCH

CUSTOMER PRODUCTS  
AND SERVICES  
DEVELOPMENT BRANCH

8/30/68

*Memorandum*

TO : See Below

DATE: SEP 18 1968

FROM : The Secretary

WILLIAM J. COBURN

SUBJECT: Establishment of the Lister Hill National Center for Biomedical Communications

On August 3, 1968 the President signed Senate Joint Resolution 193 (Public Law 90-456) which named and designated the proposed Lister Hill National Center for Biomedical Communications (enclosed).

This directive establishes the Center as an organizational entity within the National Library of Medicine, National Institutes of Health.

The Center will serve as the focal point within the Department for the development and coordination, where needed, of communication networks and systems to improve health education, medical research and the delivery of health services.

The primary functions of the Lister Hill National Center for Biomedical Communications are:

1. The design, development, implementation and technical management of a Biomedical Communications Network. Substantive materials and information to be transmitted will remain the responsibility of the program missions involved.
2. The application of existing and advanced technology to the improvement of biomedical communications.
3. To serve as the focal point in DHEW for biomedical communications systems and network projects, and represent the DHEW in these areas as appropriate.

The initial staff of the Center will be the present staff of the Associate Director for Research and Development of the National Library of Medicine. A staffing and resource allocation plan for the Center will be submitted by November 15 for approval.



Dr. R. M. Davis has been named by the Director, NLM, to serve as Director of the Center. She will continue in the collateral role of Associate Director for Research and Development, NLM.

Addressees:

Assistant Secretary for Health and Scientific Affairs  
Administrator, Consumer Protection and Environmental Health Service  
Administrator, Health Services and Mental Health Administration  
Director, National Institutes of Health

*Original file located  
at NLM, Room M-140*



Public Law 90-456  
 90th Congress, S. J. Res. 193  
 August 3, 1968

## Joint Resolution

82 STAT., 630

To designate the National Center for Biomedical Communications the Lister Hill National Center for Biomedical Communications.

Whereas, during his long and distinguished career in the Congress, Senator Lister Hill has achieved more forward-looking legislation relating to improved health and educational opportunities for the American people than any other individual in the history of this body; and

Whereas, Senator Hill's legislative interests in health, in education, and in libraries are epitomized in the National Library of Medicine, to whose establishment and development Senator Hill has paid particular attention during the course of his career; and

Whereas, a National Center for Biomedical Communications to be constructed and located as a part of this Library has been proposed by two legislators of the House, the late John E. Fogarty of Rhode Island, and Paul G. Rogers of Florida; and further that this Center has been strongly endorsed by representatives of the scientific community as an urgently required facility for the improvement of communications necessary for health education, research, and practice; and further that this Center would function to contribute enduringly to the life-long objectives of Senator Hill's legislative career: Be it therefore

*Resolved by the Senate and House of Representatives of the United States of America in Congress assembled,* That this Center be named and designated as the Lister Hill National Center for Biomedical Communications, thus perpetuating the name of the distinguished Senator from Alabama, and the legislative interests of his long and fruitful career in the United States Senate.

Lister Hill  
 National Center  
 for Biomedical  
 Communications.  
 Designation.

Approved August 3, 1968.

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CONGRESSIONAL RECORD, Vol. 114 (1968):  
 July 19: Considered and passed Senate.  
 July 24: Considered and passed House.

U.S. DEPARTMENT OF  
HEALTH, EDUCATION, AND WELFARE  
Office of the Secretary  
Washington, D.C. 20201

FOR RELEASE  
Sunday, September 15, 1968

HEW-V3

Secretary of Health, Education, and Welfare Wilbur J. Cohen announced today the formal establishment of the Lister Hill National Center for Biomedical Communications as part of the National Library of Medicine, National Institutes of Health.

Ruth M. Davis, Ph.D., Associate Director for Research and Development of the Library, will serve as Director of the new Center.

In making the announcements, Secretary Cohen said:

"This Center honors Senator Lister Hill of Alabama for his distinguished contributions to improved health for the American people.

"It will serve as the delegated agent for the Department in the development and coordination of networks and information systems to improve health education, medical research, and the delivery of health services."

The President on August 3 signed Public Law 90-456 (Senate Joint Resolution #193) which authorized this Center. The Center is an outgrowth of recommendations by the Library's Presidentially-appointed Board of Regents and several committees of Congress.

Martin M. Cummings, M.D., Director of the National Library of Medicine, said Dr. Davis will continue to serve in the collateral role of Associate Director of the Library. The Library's Research and Development staff also will serve as initial staff for the Lister Hill Center.

(More)



The Center will consist of all elements of a Biomedical Communications Network--a system being designed for faster transmittal of information to doctors, scientists and educators in all health professions. The system will use the latest electronic equipment and the most up-to-date communications technology.

For example, in the future, local medical societies and hospital libraries will have immediate access, via data transmission lines, to the computer-stored information within the National Library of Medicine. Simply by operating a typewriter-like keyboard, physicians, health scientists, or students at these local libraries will be able to tap directly this vast reservoir of medical information.

In another network application for the future, interested medical specialists assembled in a number of lecture halls throughout the United States, will be able to view a live lecture and instructional demonstration by an eminent cardiologist, or other expert, many miles away through educational television channels, via coaxial cable, microwave relay, or satellite to regional relay stations. Immediate live audience participation will be technically feasible through simultaneous two-way communication, thereby placing these distant specialists in a front row seat at the lecture hall.

# # #

1. On June 11, 1968, the contract was signed with the Computer Sciences Corporation (CSC) for the design, implementation, and programming support of MEDIARS II. CSC has organized its staff for the development effort. The contract is for a period of 42 months for development of Levels I, II, and III, with funds obligated in the amount of \$1,327,525 for Level I development.
2. The implementation of the new system is to be accomplished in three stages. Level I, to be operational during late 1969, will be a batch processing system using mass storage devices for the data base and large core storage as an extension of the main memory. Level II, to be fully operational in 1971, will provide the NLM staff with an on-line, interacting capability. This will provide direct access to the data base and controlled vocabulary through display and hard copy devices for indexing, cataloging, data base maintenance, and product retrieval, including demand searches. Eventually, remote devices at selected locations outside the Library will provide approximately this same access to the data store. Level III will be initiated during 1971. This will be both an extension of Level II and integration of the system with the Biomedical Communications Network. It will greatly enlarge access to the data base for many users to be part of the Network.
3. The CSC Staff has been working with the library staff to refine and up-date the original RFP requirements preliminary to the more detailed systems design. They have also been engaged in developing design specifications for the Computer System for Medical Information Services (COSMIS), a data management system to handle most functions required in Library applications.

4. The initial facility for the IBM 360-50 computer system will be, in large part, located adjacent to the present computer area, with necessary expansion into the Honeywell 800/200 area as MEDLARS I is phased out. The equipment configuration has been specified and a purchase order given to IBM. The equipment is to be installed and accepted by April 1969. Testing and debugging time will be obtained from the IBM Service Center, Washington, D. C. until the system is operational at NLM.

MATERIAL FOR TAB VII WAS NOT AVAILABLE AT TIME OF MAILING

The Medical Subject Headings as presently adopted by the Library are a reflection of and are conditioned by the long experience that the staff has had in indexing the contents of the medical literature. Prior to 1958 separate terms were used for the cataloging of books from those for the indexing of the serial literature; then the decision was made to require the use of a common list for both activities of the Library. It was believed that this would eventually permit the inclusion of the Library Catalog and the serial literature into a common file for machine retrieval.

The first edition of Medical Subject Headings appeared in 1960, and had been compiled from the Subject Headings and topical subheadings used for the Current List and that provided for the Card Catalog. This followed the classical library tradition of providing an alphabetic listing with a great many cross references, which served to show relationships between the individual subject headings. No new edition was published until 1963 when the first of the publications of MeSH directly related to the MEDLARS system appeared. A major change in that volume was the assignment of each subject heading to a field or category, and position it in respect to an hierarchic classification leading from the broadest to the most specific term.

The major effect resulting from that decision was to greatly reduce the number of cross references, since the terms relating to a field were to be found clustered together in the same category. The majority of the cross references were devoted to synonyms and a moderate number of cross category relationships.

Since that time changes in the Subject Headings have been limited to a yearly schedule for two reasons. One is to provide for a consistent listing in Index Medicus for each year, particularly in the compilation of the Cumulated Index Medicus; and second to permit retrieval from the MEDLARS files with a limited number of changes in the strategy for each period searched. For example to retrieve material on "TISSUE PRESERVATION" prior to 1968, the broad term under which this subject appeared was Tissue Banks which had been in the system since 1963; both terms have to be included in the search strategy if the entire data is to be queried, "TISSUE PRESERVATION" for 1968, and "TISSUE BANKS" for the previous year. Restricting the vocabulary change to a period of one year has helped to keep the MEDLARS system from becoming too complicated; however even this limitation has created a serious maintenance problem for many of the libraries which use card catalogs, and are dependent upon N.L.M. for their catalog headings.

The growth of the vocabulary is reflected in the accompanying chart:

GROWTH OF MESH

	<u>Subject</u> <u>Headings</u>	<u>Subheadings</u>	<u>Cross</u> <u>References</u>	<u>Provisionals</u>
1954	3800			
1960	4600	67	5000+	
1963	5733	-	Categories	
1964	5812	-	2500	300
1965	6345	-	3200	915
1966	6556	42	4600	554
1967	6762	53	7935	576
1968	7356	60	9000	410
1969	7436	60	9565	462

An important policy change in respect to the total number of headings was the re-introduction of subheadings in 1966, to provide for a better separation of the main heading citations in Index Medicus, and for a more direct coordination of terms for search retrieval. In effect this policy has resulted in providing for a fairly specific vocabulary that is approximately 4 times the total number of main headings; an increase from some 7400 terms to an estimated 28,000 possible combinations presently used.

The sources for the new terms that have been added during the past 4 years have been numerous. A standard system for suggestions from N.L.M. staff has been developed, and Indexers, Search Analysts and Cataloguers all actively participate in the identification of new concepts that require delineation. They have contributed approximately 50% of the new terms. Comments and recommendations from users of Index Medicus and MEDLARS demand searches and medical librarians have been additional sources. A very important group have been the Editors of the Special Bibliographies, who by virtue of working very intimately with the retrieval system, have reflected the interests and needs of the scientists in their fields, and have pointed out both vocabulary needs and assisted in suggesting clarification of indexing practices for consistency.

Advisory Committees with a direct charge to review terminology and practice in special fields have also been major sources for development of new terms. These have included by fields:

- Epidemiology
- Behavioral Sciences
- Medical Care
- Autonomic Drugs
- Toxicology
- Veterinary Sciences

These groups have met frequently with the Library Staff and have been of great assistance in selecting terminology and developing the hierarchic structure.

Two intergovernmental groups have also served as sources of terminology. The National Libraries Task Force for the development of a common vocabulary has begun meeting regularly, and while this has not had an impact as yet, it will in the future contribute more and more terms for the N.L.M. Subject Headings. The second group with which a close working relationship has been established in the past 4 years is the Information Network sponsored by the National Institutes of Neurologic Diseases. There are four major nodes of this system; the Vision Center at Harvard University; Parkinson's Disease at Columbia University; Speech and Hearing at Johns Hopkins University and Brain Sciences Information Center at U.C.L.A.

All of these groups have been experimenting with various methods of storage and retrieval of bibliographic data and have developed special lists of Subject Headings which provide for a much greater degree of specificity than is at present feasible for use at the National Library of Medicine.

The changes that have occurred during the past few years in the policies relating the role of the N.L.M. as a major component of an Information Network, have had an impact on the management of the vocabulary; and the rapidly approaching introduction of the MEDLARS II System will cause additional changes. One of the significant problems is that of communication of the changes made in the vocabulary to a greatly enlarged group who are immediately affected by these changes, chiefly the indexers and searchers who are now working at many centers throughout the world and must use the terminology consistently both for input and output. The specialized centers which relate their terminology to that of MeSH must also be kept aware of the changes in terminology and indexing policy so that they can adjust their own systems to that of the N.L.M.

One of the major problems that has recently arisen is that of shared indexing, in which the specialty oriented centers which need to index to a very specific level, also contribute to MEDLARS the input data forms for the same articles. In an effort to avoid duplicate indexing a major effort is under way to provide machine mapping of specific terms of the center to the more general subject heading used in MEDLARS. This is a monumental task which will have to be a shared responsibility between the various groups involved. The first attempt in this regard has been the mapping of the vocabulary used by the Parkinson's Disease Center. A total of some 5000 terms have been established by that center; fortunately it is based on MeSH and to that extent is most readily convertible for N.L.M. usage. However of this total group the breakdown of the relationships indicates some of the difficulties encountered in this effort.

Parkinson's Thesaurus .....	5000 terms
Specific MeSH terms .....	10%
Mappable to 1 MeSH term .....	36%
Mappable to 2 or more MeSH terms ....	5%
Non-mappable .....	6%
Chemical or Drug Terms .....	<u>43%</u>
	100%
Mappable to drug or chemical terms	80%
Mappable to action terms .....	20%

In effect, the 5000 terms in the Parkinsons Thesaurus have added approximately 3500 new entry headings to the MeSH vocabulary, which will be accepted by the MEDIARS dictionary tape and converted to the existing headings automatically by the computer. Whether this will improve retrieval specificity is not clear at this time.

This is one of the first steps in the development of what has become known as the Augmented MeSH Vocabulary for the MEDIARS II system. This will provide for an extensive documentation of all the subject headings in the system which will be available for console display on call by the user, and a variety of printouts for the users of Index Medicus who do not have access to the on line facilities of the network system.

The information required for the development of the Augmented Medical Subject Headings is at present contained in a variety of sources. These include the regularly printed volumes of MeSH; the indexers dictionary file which contains some 20,000 items with indexing instructions; the manual produced by the indexing section with specific instructions limiting the use of terms; lists of clusters of terms found useful by the Search Analysts for the retrieval of information on a specific subject, known in N.L.M. parlance as hedges; and historical information relating past terminology to present usages. The task of developing this mass of data into a single file for storage and ultimate retrieval is beyond the capacity of the Library to accomplish in a reasonable time frame with the present limitation of manpower. It will require additional assistance probably on a contractual basis carried out under the close supervision of the members of the MeSH staff who are familiar with the characteristics of the various data that will have to be merged.