

DEPARTMENT OF HEALTH AND HUMAN SERVICES  
NATIONAL INSTITUTES OF HEALTH  
NATIONAL LIBRARY OF MEDICINE  
Bethesda, Maryland

A G E N D A

87th Meeting of the

BOARD OF REGENTS

9:00 a.m., January 28-29, 1988

Board Room  
Mezzanine of  
National Library of Medicine

MEETING OPEN: All day on January 28 and from 9:00 a.m. to 11:15 a.m. on January 29.  
MEETING CLOSED: From 11:15 a.m. to adjournment on January 29 for the review of grant applications.

- I. CALL TO ORDER AND INTRODUCTORY REMARKS Dr. Edward N. Brandt, Jr.
- II. REMARKS BY THE DEPUTY ASSISTANT SECRETARY FOR HEALTH Dr. Ralph Reed
- III. REMARKS BY THE DIRECTOR, NIH Dr. James B. Wyngaarden
- IV. CONSIDERATION OF FALL MINUTES TAB I Dr. Edward N. Brandt, Jr.  
(Agenda Book)
- V. FUTURE MEETING DATES Dr. Edward N. Brandt, Jr.
- Spring Meeting: May 17-18, 1988 (T-W)--CONFIRMED  
Fall Meeting: Oct. 6-7, 1988 (Th-F)--CONFIRMED  
Winter Meeting: Jan. 26-27 OR Feb. 2-3, 1989 (Th-F)--PROPOSED
- PLEASE NOTE: AAAS Annual Mtg., Jan. 15-20,  
(Potential Conflicts 1989, San Francisco  
with Winter 1989 Dates) ALA Midwinter Meeting, Jan. 7-12,  
1989, Washington, DC  
NIAID Council Winter Meeting,  
(dates pending)

COFFEE BREAK

- |  |                        |   |
|--|------------------------|---|
| <p>VI. REMARKS BY THE DIRECTOR, NLM<br/>Discussion</p>                                     | <p><u>TAB II</u></p>   | <p>Dr. Donald A. B. Lindberg<br/>Board Members</p>  |
| <p>VII. NOVEMBER NIH DIRECTOR'S ADVISORY<br/>COMMITTEE MEETING</p>                         | <p><u>TAB III</u></p>  | <p>Dr. Eugene A. Stead, Jr.</p>   |
| <p>VIII. BIENNIAL REPORT OF THE BOARD<br/>Discussion</p>                                   | <p><u>TAB IV</u></p>   | <p>Dr. Elliot Siegel<br/>Dr. Edward N. Brandt, Jr.,<br/>Discussant<br/>Board Members</p>                        |
| <p>IX. PERMANENT PAPER TASK FORCE MEETING<br/>Discussion</p>                               | <p><u>TAB V</u></p>    | <p>Mr. Charles R. Kalina<br/>Mr. Gerard Piel and<br/>Dr. Lois E. DeBakey,<br/>Discussants<br/>Board Members</p> |
| <p>LUNCHEON CATERED IN CONFERENCE ROOM "B"<br/>Showing of new NLM Film during lunch.</p>   | <p>12:25-1:25</p>      |   |
| <p>X. LISTER HILL CENTER BIOTECHNOLOGY<br/>INITIATIVE<br/>Discussion</p>                   | <p><u>TAB VI</u></p>   | <p>Dr. Daniel R. Masys<br/>Dr. Dennis Benson<br/>Dr. Edward A. Feigenbaum,<br/>Discussant<br/>Board Members</p> |
| <p>XI. DIRECTORY OF BIOTECHNOLOGY<br/>INFORMATION RESOURCES<br/>Discussion</p>             | <p><u>TAB VII</u></p>  | <p>Dr. James J. Ferguson<br/>Board Members</p>  |
| <p>XII. REPORT ON NOVEMBER BOARD OF SCIENTIFIC<br/>COUNSELORS MEETING<br/>COFFEE BREAK</p> | <p><u>TAB VIII</u></p> | <p>Dr. Gwilym S. Lodwick</p>  |
| <p>XIII. CHEMICAL EMERGENCY RESPONSE<br/>Discussion</p>                                    | <p><u>TAB IX</u></p>   | <p>Dr. Henry Kissman<br/>Mr. Bruno M. Vasta<br/>Board Members</p>   |

XIV. REGENTS' AWARD FOR SCHOLARSHIP OR TECHNICAL DEVELOPMENT

Dr. Edward N. Brandt, Jr.

R E C E S S \* \* \* \* \*

DINNER . . . . . BETHESDA MARRIOTT HOTEL
Cocktails . . . . . 6:30 p.m. 5151 Pooks Hill Road
Dinner . . . . . 7:30 p.m. Bethesda, Maryland

SPEAKER: Dr. Donald S. Fredrickson

\* \* \* \* \*

R E C O N V E N E: Friday, 9:00 a.m., Board Room

\* \* \* \* \*

XV. REPORT FROM LIBRARY OPERATIONS

TAB X

Mrs. Lois Ann Colaianni
Dr. Ann K. Randall and
Dr. William J. Welsh,
Discussants

Discussion

Board Members

COFFEE BREAK

XVI. REPORT OF THE ACTING ASSOCIATE DIRECTOR FOR EXTRAMURAL PROGRAMS

TAB XI

Mr. Arthur J. Broering
EP Subcommittee Members,
Discussants

- A. Budget and Funding Plans
B. RFA on Biotechnology
C. Review of Board Operating Procedures
"Guidelines for Adjustments by Staff
in Time or Amount of Grant Award"

Tab A
Tab B
Tab C

Discussion

Board Members

MEETING CLOSED FOR THE REVIEW OF GRANT APPLICATIONS FROM 11:15 A.M. TO ADJOURNMENT

XVII. APPLICATION REVIEW

(Application Book)

- RESEARCH
A. Over \$100,000
B. Other

TAB I
Tab A
Tab B

Dr. Roger W. Dahlen

RESOURCE	<u>TAB II</u>	Dr. Roger W. Dahlen
A. Over \$100,000	<u>Tab A</u>	
B. Other	<u>Tab B</u>	
IAIMS	<u>TAB III</u>	
A. Over \$100,000	<u>Tab A</u>	
B. Other	<u>Tab B</u>	
FIRST	<u>TAB IV</u>	
RCDA	<u>TAB V</u>	
IMPROVEMENT	<u>TAB VI</u>	
AREA	<u>TAB VII</u>	
TRAINING (Priority List)	<u>TAB VIII</u>	
PUBLICATION	<u>TAB IX</u>	Dr. Jeanne L. Brand

XVIII. ADJOURNMENT Dr. Edward N. Brandt, Jr.

D E P A R T M E N T O F H E A L T H A N D H U M A N S E R V I C E S

NATIONAL INSTITUTES OF HEALTH  
NATIONAL LIBRARY OF MEDICINE

BOARD OF REGENTS  
MINUTES OF THE 87TH MEETING  
JANUARY 28-29, 1988

BOARD ROOM  
NATIONAL LIBRARY OF MEDICINE  
BETHESDA, MARYLAND

DEPARTMENT OF HEALTH AND HUMAN SERVICES  
PUBLIC HEALTH SERVICE

THE BOARD OF REGENTS OF THE NATIONAL LIBRARY OF MEDICINE

Minutes of Meeting 1/ 2/  
January 28-29, 1988

The Board of Regents of the National Library of Medicine was convened for its eighty-seventh meeting at 9:00 a.m. on Thursday, January 28, 1988, in the Board Room of the National Library of Medicine, Bethesda, Maryland. Dr. Edward N. Brandt, Jr., Chairman of the Board of Regents and Chancellor, University of Maryland - Baltimore, presided. In accordance with P.L. 92-463 and the Determination of the Director, NIH, and as announced in the Federal Register on December 31, 1987, the meeting was open to the public from 9:00 a.m. to 4:35 p.m. on January 28 and from 9:00 a.m. to 10:55 a.m. on January 29. The meeting was closed from 10:55 a.m. to adjournment at 11:25 a.m. on January 29 for the review, discussion, and evaluation of grant applications. A Board roster is enclosed under Attachment A.

Board members present were:

Dr. Edward N. Brandt, Jr.  
Mr. H. Robert Cathcart  
Dr. Don E. Detmer  
Dr. Edward A. Feigenbaum  
Mr. Russell L. Fenwick  
Mr. Joseph H. Howard (Ex Officio)  
Ms. Nina W. Matheson  
Dr. Ann K. Randall  
Dr. Grant V. Rodkey (January 28)  
Dr. Jay P. Sanford (Ex Officio)  
Dr. Eugene A. Stead, Jr.

Alternates to ex officio members present were:

Dr. Faye G. Abdellah, representing Dr. C. Everett Koop.  
Dr. Charles N. Brownstein, representing Dr. David T. Kingsbury.  
Brig. Gen. Rufus M. DeHart, Jr., representing Lt. Gen. Murphy A. Chesney.  
Col. Howard E. Fauver, representing Lt. Gen. Quinn H. Becker.  
Dr. Harold M. Koenig, representing Vice Admiral James A. Zimble.  
Ms. Karen Renninger, representing Dr. John Gronvall.  
Dr. William J. Welsh, representing Dr. James H. Billington.

Unable to attend:

Dr. Steven C. Beering

1/ For the record, it is noted that members absent themselves from the meeting when the Board is discussing applications (a) from their respective institutions or (b) in which a conflict of interest might occur. Only when an application is under individual discussion will the Board member absent himself. This procedure does not apply to "en bloc" actions.

2/ The Board of Regents, when considering the extramural programs of NLM, also constitutes and serves as the National Libraries Assistance Advisory Board.

National Library of Medicine staff members attending this meeting included:

Dr. Donald A. B. Lindberg, Director  
Mr. Kent A. Smith, Deputy Director  
Dr. Harold M. Schoolman, Deputy Director for Research and Education  
Dr. Michael Ackerman, Chief, Educational Technology Branch, LHCNCBC  
Mr. John Anderson, Director, Information Systems, OD  
Dr. Jeanne Brand, Chief, International Programs Branch, EP  
Mr. Arthur J. Broering, Acting Associate Director for Extramural Programs  
Mr. Kenneth Carney, Executive Officer, OD  
Ms. Lois Ann Colaianni, Associate Director for Library Operations  
Dr. Roger W. Dahlen, Chief, Biomedical Information Support Branch, EP  
Dr. James J. Ferguson, Chief, Biomedical Files Implementation Branch, SIS  
Dr. Richard K. C. Hsieh, Director, International Programs  
Ms. Betsy Humphreys, Deputy Associate Director for Library Operations  
Mr. Charles R. Kalina, Special Projects Officer, OD  
Dr. Henry M. Kissman, Associate Director for Specialized Information Services  
Mr. Sheldon Kotzin, Chief, Bibliographic Services Division, LO  
Dr. Daniel R. Masys, Director, Lister Hill National Center for Biomedical  
Communications  
Mr. Robert B. Mehnert, Chief, Office of Inquiries and Publications Management, OD  
Mr. Arthur Robinson, EEO Officer  
Mr. Mark J. Rotariu, Chief, Office of Financial Management, OD  
Dr. Elliot R. Siegel, Assistant Director for Planning and Evaluation  
Ms. Susan Slater, Senior Program Analyst, OD  
Mr. Bruno M. Vasta, Chief, Biomedical Files Implementation Branch, SIS  
Mr. Richard T. West, Chief, Office of Program Planning and Evaluation, EP

Others present included:

Dr. Ralph R. Reed, Deputy Assistant Secretary for Health  
Dr. James B. Wyngaarden, Director, NIH  
Dr. Lois E. DeBakey, Professor of Scientific Communications, Baylor College  
of Medicine, Consultant  
Dr. Gwilym S. Lodwick, Chairman, Board of Scientific Counselors, NLM  
Ms. Ileen Stewart, Executive Secretary, Special Study Section, NIH  
Mr. Gerard Piel, Chairman Emeritus, Scientific American

Members of the public present:

Ms. Ilga Semeiks, Reporter, Blue Sheet

## I. OPENING REMARKS

Dr. Eugene A. Stead, Jr., temporarily taking over the chair for Dr. Edward N. Brandt, Jr., welcomed the Regents and new ex officio alternate, Captain Harold Koenig (for Vice Admiral James A. Zimble), to the 87th meeting of the Board of Regents. He also welcomed Dr. Lois DeBakey, former member and a consultant to the Board.

## II. REMARKS BY THE DEPUTY ASSISTANT SECRETARY FOR HEALTH

Dr. Ralph R. Reed, newly appointed Deputy Assistant Secretary for Health, HHS, said that, as a private practitioner, he is well aware of the difficulties in keeping abreast of the medical literature. Rising expectations of patients and demands for accountability on the part of government and the business community, make the Library's information services--particularly such products as GRATEFUL MED--very important in distributing the "product" of research. It is good, he said, that there are 6,500 users of GRATEFUL MED, but there are another 300,000 physicians who are not. He looks forward to having access to it in his office. Dr. Reed said that he is concerned about our inability to measure the quality of health care. "I have a hard time proving how good a doctor I am." We need to be able to say "this is the best way to deliver medicine." The NLM is an excellent resource to help us develop the systems we need to provide quality health care.

After Dr. Reed's comments, Dr. Stead spoke of the possibility of NLM having "regional centers" in which the "output of practice" would be collected and processed in a systematic way. Physicians would thus know what "really happened" to patients, distributed geographically and over time. The Library should have such a function in its long-range plan. Dr. Rodkey said that data being accumulated by the Professional Standards Review Organizations (PSRO) could be utilized by the Library to produce information banks that might give us a large-scale picture of medicine and the public's health. Dr. Reed agreed, saying that the immense amount of data being collected under peer review was not being optimally utilized.

## III. REPORT OF THE NIH DIRECTOR

Dr. James B. Wyngaarden said that because there was considerable uncertainty for the first quarter of this year as to the budget, relatively few competing awards were made. Finally, on December 22, the President signed what was essentially a compromise appropriations bill--\$6.67 billion for the NIH (compared to \$6.18 billion in 1987). There are two separate components of the budget: an AIDS budget [which went up 77.4%, and an "all other" budget (which increased 4.8%)]. NLM's budget went up 9.7% (to \$68 million). Dr. Wyngaarden noted that the appropriations bill carries with it new language that directs the Library to publicize the availability of its products and services. The bill includes \$17.2 million to carry out genome mapping activities; this will result in increased generation of sequencing information. The conference report accompanying the appropriations bill calls for 6,100 new and competing renewal projects to be funded by NIH.



Because the dollar amount is fixed, it has been necessary to reduce the average cost of each grant. There have also been problems with personnel ceilings; it is difficult for the NIH to meet its new responsibilities with the 1,000 reduction in staff over the last four years. The Congress is aware of this problem.

The NIH Director described the series of regional meetings on the "health of biomedical research institutions" now being held; the meetings are a recommendation of the NIH Director's Advisory Committee. In the meetings, NIH officials describe to scientists the way the Federal health is formulated and listen to the concerns of the researchers. Meetings have already been held in Los Angeles, San Francisco, Boston, and New York. There are upcoming meetings scheduled in Chicago, Atlanta, and Dallas. Dr. Wyngaarden concluded by talking briefly about the issue of "privatizing" the NIH, recently much in the news. High salaries in industry have led to a concern about NIH being able to compete in retaining high quality intramural scientists. One answer would be to remove the NIH from the civil service completely. He emphasized, however, that the most recent spate of media attention to the privatization issue caught NIH by surprise.

In response to a question, Dr. Wyngaarden said he thought that the creation of the Friends of the National Library of Medicine organization was most useful. The FNLM can be of great help in arranging for testimony on behalf of the Library.

#### IV. CONSIDERATION OF MINUTES OF PREVIOUS MEETING

The Regents approved without change the minutes of the September 30-October 1, 1987, meeting.

#### V. DATES OF FUTURE MEETINGS

The Board will meet next on May 17-18. The fall meeting was confirmed for October 6-7. The meeting for next winter was set for January 26-27, 1989.

#### VI. REPORT OF THE NLM DIRECTOR

Dr. Lindberg reported that the Library continues to lose full-time equivalents (FTEs)--our personnel ceiling is 504. The problem is NIH-wide, however, and NLM has received equitable treatment in the reductions. NLM operates at a figure somewhat above the 504 to allow for normal delays in recruiting replacements. This "overallocation" has been especially useful in staffing the Reading Room--a vital yet "unautomatable" function. The Director mentioned that the NLM now has a co-op education program and the first participant, an engineering student, is working in the Lister Hill Center. One recent appointment of special note is Dr. Gerald Geison, a historian, who is a visiting scholar from Princeton in the Library's History of Medicine Division.

As to the Library's budget, Dr. Lindberg showed a slide that compared program by program the allocation for the fiscal year 1987 budget (\$61.8 million) and the 1988 budget (\$67.9 million). Although NLM is pleased with the increase, it does not maintain the "current service level" in either library operations or research. Dr. Lindberg discussed the Medical Library Assistance Act (under which NLM makes training, publications, and library-related grants) which is up for reauthorization this year. The last reauthorization was for levels of \$12, \$13, and \$14 million; the Long-Range Plan recommends a level closer to \$25 million. The Department's request is for "such sums as necessary." The \$200,000 limitation for resource grants had been raised to \$500,000 in the 1985 MLAA extension. This has been especially useful for funding grants for the IAIMS initiative, although future funding for IAIMS implementation will require even larger individual grants. The Department has accepted a proposal to delete any references to dollar limitation in resource program awards in the 1988 reauthorization.

Dr. Lindberg briefly discussed the various actions by Congress to deal with biotechnology. Rep. Waxman has scheduled hearings on the Pepper bill, H.R. 393, previously discussed with the Regents, that would establish a National Center for Biotechnology Information at the NLM. The hearings will be held on February 22; Dr. Wyngaarden and Dr. Lindberg will testify. In December, Senator Kennedy and several of his colleagues introduced S.1966, a comprehensive bill that, among other things, would also establish a National Center for Biotechnology Information as a component of the NLM. The Kennedy bill is a compromise to the earlier S.1480, "Department of Energy National Laboratory Cooperative Research Initiative Act," introduced by Senator Pete Domenici last July. Senator Domenici's bill addressed biotechnology research and information handling, but did not include a role for the NLM. In addition, as Dr. Wyngaarden mentioned earlier, the recently passed FY 1988 appropriations bill provided \$3.8 million for the NLM to create such a Center.

Dr. Lindberg said that there is steady progress on the Unified Medical Language System. NLM-sponsored fundamental research is continuing in universities and NLM is now approaching the medical specialties for their cooperation. Last month the AMA, which has agreed to be the bridge to the specialties, convened a meeting at which some 20 specialty groups were represented. Dr. Lindberg and other NLM staff briefed the representatives and invited their participation in the UMLS.

The NLM Director reported briefly on the "The Matrix of Biomedical Knowledge." This is a concept arrived at by a committee sponsored by the National Institutes of Health (the Division of Research Resources and NLM) and described in the committee's report, "Models for Biomedical Research: A New Perspective," issued by the National Academy of Sciences Press. The committee was originally charged with looking into alternatives for animal models. The committee sponsored a series of workshops over two years in which leading scientists reported on the use of "models" in their specialties. Dr. Lindberg described their findings, using as an example the familiar periodic table of the elements, the body of knowledge conceptualized by Mendeleev. He related this to the immense amount of knowledge that is generated by current biotechnology research.

Dr. Lindberg briefly reported about the "critical incident technique" (CIT) study now being undertaken by NLM. The CIT study is intended to generate extensive data about incidents linking the use of MEDLINE to patient-care outcome. Dr. Lindberg said that there is a steady increase in use of the NLM online system; last year four million searches were done. NLM knows relatively little, however, about who is making those inquiries and for what purpose. Several cursory studies that have been done revealed that roughly half of the searches were to aid in the diagnosis or prognosis of a patient. GRATEFUL MED, intended for use by individual health professionals, will presumably increase the number of searches whose purpose is patient care. What NLM is now attempting is a systematic study, using the CIT technique, of the use of our information systems in the practice of medicine. NLM will be reporting the results of the study at a future meeting of the Board. Dr. Lindberg's comments gave rise to an extended discussion about how MEDLINE and GRATEFUL MED are announced and made available to the biomedical community. There was general agreement that NLM should take every opportunity to promote its online systems with health professionals, researchers, and students. Dr. Lindberg said that the new authority in the NLM legislation for the Library to "publicize" its services will be a great help in this direction. The Library will have to test, however, just how far we can go. The Friends of the National Library of Medicine, he said, are becoming quite active in promoting the Library and its services. They do not operate under the same constraints as the Library. (Dr. Lindberg distributed to the Regents an ad about GRATEFUL MED that was created by the Friends and is now being sent to medical journals.) He noted that the new, lower rates for students, recently instituted by the Library, are intended to encourage a lifelong habit of database searching on the part of budding health professionals.

Dr. Lindberg ended his presentation by telling the Regents about the Literature Selection Technical Review Committee that has recently been formed to advise the Library on the journals it selects for indexing in MEDLARS and Index Medicus. The Committee, composed of 12 members selected by the Director, NIH, will meet at the Library three times a year. Although the Committee will not be officially formed until this summer, individual members will be brought to the Library this spring to discuss some of the important issues related to selecting literature.

## VII. REPORT ON NIH DIRECTOR'S ADVISORY COMMITTEE MEETING

Dr. Eugene Stead made a short report on the November 1987 NIH Director's Advisory Committee meeting he attended as a representative of the Board of Regents. The meeting was primarily to review NIH's total AIDS effort. Dr. Stead was impressed with the professionalism of the presentations and came away with the view that AIDS research activities were being competently handled. The discussions were primarily scientific; there was little discussion of the "political" aspects of AIDS. Following Dr. Stead's report, Dr. Brandt noted that NLM was very much involved in arranging the two upcoming field hearings of the NIH Director's Advisory Committee: February 17 in Dallas and February 18 in Atlanta. Dr. Brandt will represent the Board of Regents at these meetings.

## VIII. PERMANENT PAPER TASK FORCE MEETING

After briefly reviewing the Library's concern with deteriorating paper in books and journals, the subject of several previous discussions by the Regents, Mr. Charles Kalina, NLM Special Projects Officer, reported that the first meeting of the NLM Permanent Paper Task Force took place at the Library on January 15 and 16. The Task Force is chaired by Mr. Gerard Piel (chairman emeritus of Scientific American) and co-chaired by Dr. Lois DeBakey (former Regent and currently a consultant to NLM). Mr. Kalina introduced Mr. Piel, who described the Task Force membership of 31 publishers, printers, paper manufacturers, editors, librarians, and others concerned with preservation of the medical literature. Among them they represent, in one capacity or another, some 400 Index Medicus journal titles. He said that it became apparent to him during the discussions that the problem "is one of economics and sociology, not technology." Mr. Piel then called on Dr. DeBakey for the keynote statement of the Task Force mission she delivered at the Task Force meeting. [Note: Dr. DeBakey's remarks will be incorporated in the Congressional Record. Copies of the statement will be sent to the Regents.]

Following Dr. DeBakey's presentation, Mr. Kalina summarized the discussions and conclusions of the Task Force. Its consensus was that where the desire to use acid-free paper is strong enough, there are no obstacles so serious that they would stand in the way of a publication's conversion. It was noted repeatedly during the meeting that the production costs of acid-free paper are inherently lower than those of acidic paper. However, paper makers and publishers frequently do not place permanence high on their list of priorities. What needs to be done is to persuade manufacturers to convert more of their capacity to acid-free printing paper and to persuade publishers that it is ultimately in the best interest of everyone to publish on acid-free paper.

Mr. Kalina described how the Task Force was organized into four subcommittees: principles and applications (policy matters); publishers and printers (production sector); editors, authors, and professional societies (creative sector); and the paper industry subcommittee.

Principles and recommendations for permanent paper use were agreed on by the Task Force after the subcommittees met, and there was full discussion of their findings. Principles acknowledged were that (1) paper will remain the premiere medium of knowledge exchange for the foreseeable future; (2) permanent paper should be used for printing publications of enduring value in the original to the extent possible, rather than be limited in use to replicating archival copies; (3) standards that define paper permanence should be a guide to paper selection, flexible in their application so as not to discourage efforts of users to look for paper that is free of acid; and (4) publications printed on acid-free paper should be clearly identified so that duplicate efforts at preservation in the future can be forestalled. Recommendations were made to (1) develop fact sheets to inform publishers about acid-free paper standards, costs, availability, and experiences with its use; and (2) develop authoritative background information for the use of the Task Force, such as, what kind of paper are publishers currently using, which publishers, printers, paper merchants, and trade and professional associations should be approached, what surveys on paper use exist, and what case studies have been done. Strategies agreed on were for the Task Force members to reach influential decision makers individually and at major meetings, to explore joint efforts at development of suitable papers by

manufacturers and major users, and to expand the use of realistic acid-free paper standards. A number of Task Force members have been designated to begin implementing its recommendations and strategies. The Task Force will meet again in June to review progress and to consider further activities appropriate for encouraging more use of permanent paper.

Mr. Welsh commented that he could make the film, "Slow Fires," about the preservation problem with deteriorating paper in libraries available to the Regents. It exists in both one-hour and half-hour versions; it was recently shown on PBS.

#### IX. BIENNIAL REPORT OF THE BOARD

Dr. Elliot Siegel, NLM Assistant Director for Planning and Evaluation, presented a draft report of Board of Regents' activities to be included in the Second Biennial Report of the Director, NIH. This Report is required by law to be sent to the Congress and the President in December 1988. Dr. Siegel briefly reviewed the contents by major topic. The Board recommended a modest addition to one section of the report and then voted unanimously to accept it.

#### X. LISTER HILL CENTER BIOTECHNOLOGY INITIATIVE

Dr. Daniel R. Masys, Director of the Lister Hill National Center for Biomedical Communications, reported to the Board about the activities of the Library in the area of molecular biology. He mentioned that the Long-Range Plan strongly recommended that the Library become involved in biotechnology information activities. The NLM for several years has been cooperating with other NIH components and Federal agencies in supporting GenBank. That data bank is now up to 16 million nucleotides and is growing at the rate of one million plus per month. They will eventually swell into the billions. The Library's present activities fall into three categories: building new databases and enhancing existing databases, improving data retrieval and analysis from the databases, and educational activities.

Dr. Masys briefly reviewed progress in each area. In the area of database building and enhancement we are (1) creating new vocabulary linkages between MEDLINE and GenBank; (2) developing a Biotechnology Information Resource Directory--a database of biotechnology databases; (3) developing specifications for a biotechnology environmental release data system to serve as both a scientific and a regulatory reference source; and (4) enhancing the online version of Dr. Victor McKusick's Mendelian Inheritance in Man. In the area of improving information retrieval from databases, Dr. Masys briefly described (1) the information retrieval experiment (IRX), a prototype system that will provide access to multiple factual data banks; (2) the NIH campus high-speed digital link that has been installed between the Lister Hill Center, NIH's Division of Computer Research and Technology, and NCI's Frederick Research Facility; and (3) the request for grant applications recently announced by NLM for biotechnology information-related research projects. In the third category--educational activities--Dr. Masys mentioned the popular series of lectures on biotechnology held during 1987 in the Lister Hill Center auditorium. Featuring leading authorities, the lectures have been videotaped and are available from NLM on interlibrary

loan. The Library is also sponsoring workshops and tutorials for scientists to show them how to use computer-based information tools in biotechnology. After reporting progress to date in these three areas, Dr. Masys briefly described future prospects, including what activities the new National Center for Biotechnology Information will engage in. One focus of the Center will be a core intramural research staff complemented by a visiting scientist program.

Following Dr. Masys' remarks, Dr. Dennis Benson of the Lister Hill Center staff demonstrated from a Sun workstation the prototype interface system developed within the Center that permits integrated and simultaneous searching of several databases containing biotechnology-related information.

Dr. Edward A. Feigenbaum, commenting on the presentation and demonstration, said he was enthusiastic about the NLM projects in biotechnology--they represent a major new biomedical informatics and information initiative. The initiative is especially relevant now that the national human genome project is beginning, as mentioned earlier by Dr. Wyngaarden. With attention, money, and prestige being focused on this project, the "turf is quite green" and worth competing for. NLM is a logical participant in all this, but so are other parts of the NIH, some in the private sector, and even the Department of Energy has staked out a claim in this area. Ms. Nina Matheson noted that the speed with which the Lister Hill Center staff has taken up the challenge to interconnect the various biotechnology databases is very impressive both conceptually and in execution.

#### XI. DIRECTORY OF BIOTECHNOLOGY INFORMATION RESOURCES

Dr. James J. Ferguson, Jr., of the Specialized Information Services (SIS) staff, described the project to create and make available a "Directory of Biotechnology Information Resources" within the MEDLARS system. The directory will identify online databases containing factual biotechnology information and organizations doing work in this area. It will guide investigators to actual sources of, for example, unique microorganisms, gene fragments, vectors, and other biological tools. It would extend into broad areas of molecular biology. Such comprehensive "yellow-pages" information exists nowhere else at this time and would greatly expedite research. The directory would be used by academic and industrial investigators and regulatory personnel; there would also be considerable public interest in this information. The kinds of information to be included: lists of existing factual and bibliographic databases, registries and collections, descriptions of organizations in biotechnology research, and agencies concerned with the nomenclature of the field. He enumerated several specific databases that were representative of the kind to be included. The resulting "electronic reference librarian," as Dr. Ferguson termed it, will be available publicly on ELHILL (MEDLARS) this spring or summer. The 500-1000 records will be searchable via MeSH terminology. It will also be available on diskette and possibly in printed form. The nonprofit American Type Culture Collection is building the directory under contract to NLM.

#### XII. REPORT OF NOVEMBER BOARD OF SCIENTIFIC COUNSELORS MEETING

Dr. Gwilym S. Lodwick, Chairman of the NLM Board of Scientific Counselors, reported that at its last meeting on November 16-17, 1987, the BOSC reviewed several Lister Hill Center activities. The Board considered the research

support contract mechanism; such contracts require peer review much as investigator-initiated grants do. The Lister Hill Center uses such research contracts to leverage the amount of staff it has available, to obtain specialized skills for a short-term task, and to obtain skills not available with government personnel. In general these contracts have fallen into two categories: for programming support and for custom hardware fabrication. The BOSC considered this mechanism and felt that its review of individual research projects constituted also a review of any individual research contracts necessary to the completion of the project.

The BOSC also reviewed two ongoing Lister Hill Center projects: the Computer-Assisted Curriculum Delivery Systems (CCDS) Project and the Technological Innovations in Medical Education (TIME) Project. Both are excellent, highly sophisticated, technological, research-oriented projects. The Board of Regents had seen them demonstrated by Lister Hill Center staff at previous meetings. Dr. Lodwick briefly brought the Regents up to date on the projects, mentioning several areas that need improvement, for example, the problem of "rigidity" of design of CCDS. In the case of the TIME project, he said that it is hard to imagine how a program could be better done than "The Case of Patricia Fletcher," the second of the voice-actuated interactive instructional programs developed by the Lister Hill Center. Dr. Lodwick said, however, that the Board of Scientific Counselors called for more emphasis on developing better evaluation modes and validated user-support materials for TIME programs.

### XIII. CHEMICAL EMERGENCY RESPONSE

Dr. Henry Kissman, NLM Associate Director for Specialized Information Services, reported about the Library's information services used in responding to chemical emergencies. These emergencies range from accidental releases of chemicals, to fires and explosions, to spills after transportation accidents. There are thousands of such emergencies in the United States each year. The responsibility to deal with them is dispersed over many local, state, and Federal organizations. One key agency at the Federal level is the Agency for Toxic Substances and Disease Registry (ATSDR). Emergency response is complicated by the fact that there is a wide range of physical, chemical, biological, and environmental properties associated with the approximately four thousand substances used in substantial quantities each year by American industry. Accurate information about these substances must be communicated quickly to a variety of responding officials--local firefighters and HAZMAT teams, and higher level emergency response groups.

The National Library of Medicine not only provides other agencies with scientific and technical information for use in handling chemical emergencies, but has developed sophisticated access methodologies to facilitate the gathering and processing of such information. NLM has also been involved in training response personnel in the use of the information services. For the most part, the relevant NLM programs have been developed in collaboration with the ATSDR. Much of the funding made available to NLM has been under the Superfund Act and its extensions. The NLM Hazardous Substances Data Bank (HSDB) has in it much of the information about the 4,200 chemicals it describes that would be required in an emergency situation involving any of these chemicals. Dr. Kissman briefly described

the categories of information contained in HSDB for each substance, and the sources of the peer-reviewed information. Several current NLM projects are concerned with developing systems that allow on-site responders to chemical emergencies to have quick access to the information they need. Dr. Kissman emphasized that the Library's proper role was in the packaging and providing of information, not in directing how the information should be used for treatment, etc.

The TOXNET system, through which several of the data banks, including HSDB, are made available online, is being enhanced with new capabilities to facilitate searching. The Library has taken a lead role in developing a microcomputer workstation for chemical emergency response that will help on-site teams retrieve data from a variety of online files located in different government and private vendor computer systems. ATSDR staff have been trained in the use of the workstation and it is now being tested in the field. NLM is also working on a version of the workstation that would contain the HSDB--possibly on CD-ROM--so that the user would not be dependent on online access via telephone communication. In another project, a prototype expert system is being developed that mimics the information-gathering action of an "expert" in an emergency situation. Finally, Dr. Kissman described a new training activity whereby government officials in 11 states are being trained in the use of NLM online files for chemical emergencies. In a related effort, several HAZMAT teams in the Washington, D.C., area are being trained by NLM in the use of these files as well.

Following Dr. Kissman's presentation, Mr. Bruno M. Vasta, Chief of the Biomedical Files Implementation Branch, SIS, described current collaboration of NLM's Specialized Information Services with the Maryland Institute of Emergency Medical Services. Mr. Vasta and his colleagues have trained the Institute's staff to use the TOXNET system and to access the HSDB. As Dr. Kissman mentioned, the SIS staff is also training a number of local firefighters and HAZMAT teams in Maryland and Virginia. Mr. Vasta posited for the Regents a scenario of a chemical spill on a local highway, describing how the HAZMAT team would respond, using the TOXNET system to retrieve information about the substances involved in the spill. The SIS staff participated in a major simulation of a disaster in the Baltimore harbor late last year. The disaster drill was sponsored by the State of Maryland. The Library had a video crew on hand to film part of it and from this (and footage provided by the Mayor's office) NLM has put together a "Video News Release" that will be sent to television stations nationwide in early March. Mr. Vasta showed the two-minute release. A five-minute training film is also being made from tape shot at the disaster simulation.

#### XIV. 1988 REGENTS' AWARD

Dr. Brandt presented the 1988 Regents' Award for Scholarship or Technical Achievement to Mr. James Main, Chief of the Audiovisual Program Development Branch, Lister Hill Center. Mr. Main was cited for his "innovative application of video and other electronic image production methods to a range of challenging and highly specialized imaging problems associated with medicine and biology."



## XV. REPORT FROM LIBRARY OPERATIONS

Mrs. Lois Ann Colaianni, NLM Associate Director for Library Operations, reported on five areas of interest--onsite use, interlibrary loan, bioethics database, 1987 MEDLARS usage, and preliminary results of a survey of MEDLARS use by individuals.

Onsite usage. NLM provides over a half million documents a year via interlibrary loans and to patrons in the Library's reading rooms. Onsite usage in the main Reading Room has increased significantly in the last few years (55% between 1982 and 1986). The resulting strain on facilities and staff has led to slower service than NLM would wish--delivery time for patrons is often as long as one hour. It also affected NLM's ability to provide satisfactory interlibrary loan service. Several factors leading to this increase are the opening of the new Metro subway station at NIH and the increased activity of information brokers--individuals in the business of copying journal articles for requesters. Studies have shown that 38% of the users are students, 19% are health professionals, 20% are researchers or educators, and 10% are commercial information brokers. One significant statistic is that 4.4% of the users request 40% of items that must be retrieved from the stacks. As a result of these studies, several changes have been implemented for onsite users: (1) 200 of the most heavily used journals (1980 to date) have been made available in the Reading Room (a second copy is in the stacks for interlibrary loan purposes); (2) a new online database containing half a million citations for those 200 titles, REFLINE, has been created for onsite users; (3) the number of requests a patron may make from the stacks in one hour has been reduced from nine to five, and to 10 per day; (4) an overnight photocopy service (\$5 per article) has been instituted for heavy users; and (5) a new patron registration and tracking system will help us to identify users. Under these new procedures, 90% of all requests are now filled within 40 minutes.

Interlibrary loan. NLM serves as the "library of record" or backup collection to American health science libraries; it is not intended to serve as a primary resource for health professionals. Libraries generally request items on interlibrary loan that are unusual or older--items not found in their collections. NLM has recently looked at the titles being requested on interlibrary loan to see if in fact NLM is serving as a backup resource for materials generally not available in other collections. The most recent review, when compared with a similar survey done in 1959, shows some remarkable shifts in interlibrary loan request patterns. Mrs. Colaianni presented tables showing how the titles requested have changed over the years. She attributed the changes primarily to the institution of the Regional Medical Library Network and the development of improved collections at medical schools and hospitals. She described the effect of the introduction in 1986 of DOCLINE--NLM's automated interlibrary loan request routing and referral service. By the end of 1987, 1,434 libraries had submitted their journal holdings to NLM and were using DOCLINE. There are some 800,000 requests annually between libraries using DOCLINE. Statistics were presented showing the most frequently requested journal titles (of the approximately 11,000 serials). Of the 25 most requested titles, all are indexed and announced in a MEDLARS database. Of all titles requested, 65% are announced by some indexing or abstracting service. Those that are not being covered will be studied by NLM.

Mrs. Colaianni also presented statistics about borrowing institutions--the National Agricultural Library is the most frequent borrower of the 3,800 libraries that borrow from NLM.

Bioethics. Mrs. Colaianni described the Library's involvement since 1974 with providing more than \$1.5 million to the Kennedy Center for Bioethics (Georgetown University) for indexing and creating bibliographic records on bioethics. The resulting MEDLARS database, BIOETHICSLINE, contains a wide variety of reference materials--journal articles, committee reports, newspaper articles, books, legal publications, etc. In 1987 the Library and the Kennedy Institute agreed that long-term viability would be better served with a different financial mechanism. NLM has proposed a three-year contract that would streamline the input cycle, eliminate redundant indexing, provide greater linkage between bioethics terminology and MeSH, increase timeliness of information in the database, and reduce costs.

MEDLARS usage. Billed usage of NLM's 20 or so databases has increased 53% in the last three years. Many of the databases are also leased to commercial vendors and cooperating foreign institutions. Mrs. Colaianni presented a variety of statistics that revealed how usage of the databases has changed over the last year. In 1987 overall use increased from 558,000 hours to 609,000 (9% increase). Online billed use at NLM was some 40% of total billed use (including commercial and foreign users). The predominant database is MEDLINE (79.8% of all online usage). Mrs. Colaianni presented usage statistics on various other NLM databases. The most remarkable increase, however, is in the number of online codes, from 5,700 in December 1985 (13% held by physicians) to more than double that in December 1987 (25% held by physicians). Mrs. Colaianni mentioned that although more and more physicians were obtaining codes, there are still many hospitals without access. This gave rise to a discussion among the Regents about how online usage could be increased among small hospital libraries, including a possible role for the Friends of the National Library of Medicine. Dr. Lindberg said NLM would be delighted if all hospitals and all physicians and health professionals had access to GRATEFUL MED; the amount of their usage would not be as important as its availability to them when they need it. Mrs. Colaianni said that the substantial increase in codes for physicians is due to GRATEFUL MED; 72% of all new applications for codes are being made by GRATEFUL MED purchasers. Version 3.0 of GRATEFUL MED has just been released; it has a number of new features, including the ability to access certain other NLM databases. She noted that last fall the Library instituted a new policy of charging 50% less for student usage. That has been a success--96 medical students and 30 medical schools (totaling 640 codes) have applied for the reduced rates.

Survey of individual online use. To get more detailed information about the growing number of individual users and their use of the system, NLM conducted an OMB-approved survey last year. Some 4,300 questionnaires were mailed; there was a remarkably high usable return rate of 68%. Mrs. Colaianni presented a series of slides summarizing the survey results. In brief, they showed that most respondents were physicians or scientists (or both), but only 13% received their doctorates before 1960; nearly half worked in educational institutions; nearly half did fewer than three searches a month; the vast majority were satisfied with searching MEDLINE on the NLM computer; most are searching for references in response to an immediate need; more than half said they were interested in retrieving all

relevant references (a substantial minority wished to retrieve a few recent, relevant citations); more than half typically retrieve the number of references they are looking for (although more retrieve too many than too few); more than half of the respondents said that 50% or fewer retrieved citations were relevant to their query; the primary uses of MEDLINE searches are in research and patient care; more than 90% usually search by subject (rather than author or journal title); 80% used MeSH, at least occasionally; and, finally, among the new capabilities desired by the users were flexible print commands and the ability to search all backfiles simultaneously. Significantly, there was no difference in overall satisfaction between those who used the "command" language to search and those who used GRATEFUL MED.

Following Mrs. Colaianni's presentation, Dr. Abdellah, who serves on the Kennedy Institute's Advisory Board, commented that the bioethics database has had a great effect on the health policies of various states concerning abortion, euthanasia, living wills, and such matters. Dr. Lindberg added that its importance is much greater than the number of connect-hours would lead one to believe. A number of Regents agreed that the bioethics database should receive more exposure in the health community.

#### XVI. REPORT OF THE ACTING ASSOCIATE DIRECTOR FOR EXTRAMURAL PROGRAMS

Mr. Arthur J. Broering discussed the Extramural Programs' budget for FY 1988 and future funding plans. For the IAIMS and Resource Project Grants Programs approximately \$100,000 less will be available for new awards in 1988, while new Research and Publication Grants will be reduced by \$150,000 and the Medical Informatics Research Program by about \$600,000. At NIH overall, each institute will reduce new and continuation awards in FY 1988 from seven to eleven percent. NLM will make similar reductions in the Medical Informatics Program. Only \$400,000 are allocated to this Program in 1988, and the reductions will enable NLM to support a more reasonable number of clearly superior new projects during the year. Mr. Broering pointed to some good news in the 1988 budget, that of a one-million dollar allocation to the important area of biotechnology research. That means that Extramural Programs will at least be able to establish a foundation for biotechnology information research in 1988. In response to such a need, and in anticipation of some limited funds, NLM issued in December 1987 an RFA (Request for Application), announcing its interest in receiving applications for "Molecular Biology Data--Representation/Analysis by Computer." The application receipt date is February 12. Seventeen letters of intent have been received. This will get the program started, albeit on a small scale.

#### Board Operating Procedures

As required annually, Mr. Broering presented for review the Board Operating Procedures--"Guidelines for Adjustments by Staff in Time or Amount of Grant Award." The Board reaffirmed the Operating Procedures unanimously.

-----  
MEETING CLOSED FOR THE REVIEW OF GRANT APPLICATIONS, 10:55 A.M., JANUARY 29, 1988  
-----

XVII. REVIEW OF PENDING APPLICATIONS

Before proceeding with the consideration of pending applications, Dr. Roger W. Dahlen, Chief, Biomedical Information Support Branch, EP, informed Board members of confidentiality and conflict-of-interest procedures and reminded them to sign, at the conclusion of the grant application review, the statement noting that they had not participated in the discussion of any application which presented a conflict of interest.

The Board reviewed 48 applications, requesting \$10,554,468, and recommended for approval 26 applications in the amount of \$7,307,893 for the total years requested. Twenty applications in the amount of \$2,730,257 were disapproved. Grant applications recommended for approval by the Board are listed in the summary actions (Attachment D). Interim actions taken by the Extramural Programs staff since the October meeting were considered by the Board's Extramural Programs staff since the October meeting were considered by the Board's Extramural Programs Subcommittee and noted and concurred with by the Board of Regents.

XVIII. ADJOURNMENT

The meeting was adjourned at 11:25 a.m. on Friday, January 29, 1988.

\* \* \* \* \*

- Wednesday, January 27, 1988, 1:15 to 2:15 p.m.  
(Program Outreach Subcommittee--List of Attendees under Attachment B)
- Wednesday, January 28, 1988, 2:00 to 3:40 p.m.  
Extramural Programs Subcommittee--List of Attendees under Attachment C)
- Thursday, January 28, 1988, 9:00 a.m. to 4:35 p.m.
- Friday, January 29, 1988, 9:00 to 11:25 a.m.

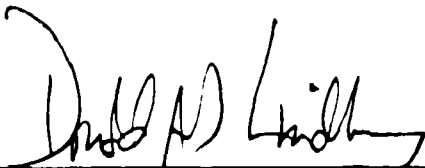
\* \* \* \* \*


ACTIONS TAKEN BY THE BOARD OF REGENTS

1. The Board concurred with 48 recommendations of the Extramural Programs Subcommittee. Grant applications for approval are listed in the summary actions (Attachment D).

\* \* \* \* \*

I hereby certify that, to the best of my knowledge, the foregoing minutes and attachments are accurate and complete.

 3/23/88  
 Donald A. B. Lindberg, M.D. (Date)  
 Executive Secretary

 3/18/88  
 Edward N. Brandt, Jr., M.D., Ph.D. (Date)  
 Chairman

## BOARD OF REGENTS OF THE NATIONAL LIBRARY OF MEDICINE

## CHAIRMAN

**BRANDT, Edward N., Jr., M.D., Ph.D. (8/3/89)**

Chancellor  
 University of Maryland at Baltimore  
 520 West Lombard Street  
 Baltimore, MD 21201

301-328-7002

<b>BEERING, Steven C., M.D. (8/3/91)</b>	<b>MATHESON, Nina W. (8/3/90)</b>
President	Director
Purdue University	William H. Welch Medical Library
West Lafayette, IN 47907	Johns Hopkins University
<u>317-494-9708</u>	School of Medicine
	1900 East Monument Street
<b>CATHCART, H. Robert (8/3/90)</b>	Baltimore, MD 21205
President	<u>301-955-3411</u>
Pennsylvania Hospital	<b>RANDALL, Ann K., D.L.S. (8/3/89)</b>
Eighth and Spruce Streets	Professor and Chief Librarian
Philadelphia, PA 19107	The City College of CUNY
<u>215-829-3312</u>	5333 North Academic Center
	138th Street and Convent Avenue
<b>DETMER, Don E., M.D. (8/3/91)</b>	New York, NY 10031
Vice President for Health Affairs	<u>212-690-4271</u>
University of Virginia	<b>RODKEY, Grant V., M.D. (8/3/88)</b>
Box 179, Medical Center	Assoc. Clinical Professor of Surgery
Charlottesville, VA 22908	Harvard Medical School
<u>804-924-2444</u>	25 Shattuck Street
	Boston, MA 02115
<b>FEIGENBAUM, Edward A., Ph.D. (8/3/90)</b>	<u>617-742-4180</u>
Professor of Computer Science	Mailing Address:
Computer Science Department	15 Parkman Street, Suite 134
Stanford University, HPP Bldg. C	Boston, MA 02114
Stanford, CA 94305	<u>415-723-4878</u>
<b>FENWICK, Russell L. (8/3/88)</b>	<b>STEAD, Eugene A., Jr., M.D. (8/3/88)</b>
Senior Vice President (Retired)	Prof. Emeritus of Medicine
Bank of America	Duke University
12015 Mesa Verde Drive	Duke Hospital - P.O. Box 3910
Valley Center, CA 92082	Durham, NC 27710
<u>619-749-7450</u>	<u>919-684-6587</u>

## EX OFFICIO MEMBERS

## Primary

**BECKER, Quinn H., Lt. Gen., MC, USA**  
 The Surgeon General  
 Department of the Army  
 5111 Leesburg Pike  
 Falls Church, VA 22041-3258  
703-756-0000

## Alternate

**FAUVER, Howard E., Col., MC, USA**  
 Chief  
 Graduate Medical Education Branch  
 U.S. Army Health Professional Support  
 Agency (SGPS-EDM)  
 5109 Leesburg Pike  
 Falls Church, VA 22041-3258

703-756-8036

Board of Regents Roster (Continued)

**Primary**

**Alternate**

**BILLINGTON**, James H., D.Phil.  
 Librarian of Congress  
 Library of Congress  
 10 First Street, S.E.  
 Washington, DC 20540

202-287-5205

**WELSH**, William J., LL.D.  
 Deputy Librarian of Congress  
 Library of Congress  
 James Madison Memorial Bldg., Rm. 608  
 10 First Street, S.E.  
 Washington, DC 20540

202-287-5215

**CHESNEY**, Murphy A., Lt. Gen., USAF, MC  
 Surgeon General  
 Department of the Air Force  
 Bolling Air Force Base  
 Washington, DC 20332-6188

202-767-4343

**DeHART**, Rufus M., Jr., Brig. Gen., USAF, MC  
 Director, Professional Affairs and  
 Quality Assurance (SGP)  
 Bolling Air Force Base  
 Washington, DC 20332-6188

301-767-1849

**GRONVALL**, John, M.D.  
 Chief Medical Director  
 Veterans Administration  
 Dept. of Medicine and Surgery  
 810 Vermont Avenue, N.W.  
 Washington, DC 20420

202-233-2596

**RENNINGER**, Karen  
 Chief, Library Division 142D  
 Veterans Administration  
 810 Vermont Avenue, N.W.  
 Washington, DC 20420

202-233-2711

**HOWARD**, Joseph H.  
 Director, National Agricultural Library  
 U.S. Department of Agriculture  
 10301 Baltimore Boulevard  
 Beltsville, MD 20705

301-344-4248

**KINGSBURY**, David T., Ph.D.  
 Asst. Director for Biological,  
 Behavioral, and Social Sciences  
 National Science Foundation  
 1800 G Street, N.W., Room 506  
 Washington, DC 20550

202-357-9854

**BROWNSTEIN**, Charles N., Ph.D.  
 Director, Directorate for Computer and  
 Information Science & Engineering  
 National Science Foundation  
 1800 G Street, N.W.  
 Washington, DC 20550

202-357-7936

**KOOP**, C. Everett, M.D., Sc.D.  
 Surgeon General, PHS, and  
 Director, Office of International Health  
 200 Independence Avenue, S.W.  
 Washington, DC 20201

202-245-6467

**ABDELLAH**, Faye G., Ed.D., Sc.D.  
 Deputy Surgeon General, PHS  
 Parklawn Building, Room 18-67  
 5600 Fishers Lane  
 Rockville, MD 20857

301-443-4000

**SANFORD**, Jay P., M.D.  
 Dean, Uniformed Services University  
 of the Health Sciences  
 F. Edward Hebert School of Medicine  
 4301 Jones Bridge Road  
 Bethesda, MD 20814-4799

301-295-3013

**ZIMBLE**, James A., Vice Adm., MC, USN  
 Surgeon General  
 Office of the Chief of Naval  
 Operations (OP-093)  
 Department of the Navy  
 Washington, DC 20350-2000

202-697-0587

**KOENIG**, Harold M., Capt., MC, USN  
 Commanding Officer, Naval Health  
 Services and Education Command  
 Department of the Navy  
 Bethesda, MD 20814-5022

301-295-0293

**EXECUTIVE SECRETARY**

**LINDBERG**, Donald A. B., M.D.  
 Director  
 National Library of Medicine  
 Bethesda, MD 20894

301-496-6221

PROGRAM OUTREACH SUBCOMMITTEE

January 27, 1988

1:15 to 2:15 p.m.

A T T E N D E E S

Subcommittee Members Present:

Mr. H. Robert Cathcart, Chairman  
Ms. Karen Renninger

Unable to Attend:

Dr. Faye G. Abdellah  
Dr. David T. Kingsbury

NLM Staff Present:

Mr. Kent A. Smith, Deputy Director  
Mr. Robert B. Mehnert, Chief, Office of Inquiries and Publications  
Management, OD  
Mr. Charles R. Kalina, Special Projects Officer, OD  
Dr. Bruno M. Vasta, Chief, Biomedical Files Implementation Branch, SIS

Members were briefed by NLM staff and discussed the following items:

- New legislative authority for NLM publicity activities.
- Articles about the Library that have appeared in the print media since the last Board meeting.
- Electronic media items--CBS television show and the revised NLM film, "Communicating for Health."
- Publicity on the Hazardous Substances Data Bank.
- Press release about GRATEFUL MED and plans for further publicity.
- Exhibit plans for 1988.
- Visitor/tour activity at NLM in 1987.
- Publicity on NLM literature preservation activities.
- Awards received by the Library for its publicity efforts.

B O A R D O F R E G E N T S

EXTRAMURAL PROGRAMS SUBCOMMITTEE MEETING

January 27, 1988

2:00 to 3:40 p.m.

A T T E N D E E S

Subcommittee Members Present:

Dr. Grant V. Rodkey, Chairman  
Ms. Nina W. Matheson  
Dr. Ann K. Randall  
Dr. Eugene A. Stead, Jr.

Unable to Attend:

Dr. Jay P. Sanford

NLM Staff Present:

Mr. Arthur J. Broering, Acting Associate Director, EP  
Mrs. Ruth Bortz, Grants Management Specialist, EP  
Dr. Jeanne L. Brand, Chief, International Programs Branch, EP  
Mr. Peter Clepper, Program Officer, EP  
Mrs. Karin K. Colton, Committee Management Assistant, EP  
Dr. Roger W. Dahlen, Chief, Biomedical Information Support Branch, EP  
Ms. Rose Marie Holston, Program Analyst, EP  
Mrs. Frances E. Johnson, Program Officer, EP  
Dr. M. Kathleen Nichols, Grants Management Specialist, EP  
Mr. Randall Worthington, Program Officer, International Programs  
Branch, EP



INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
2 R01 LM04174-04A1	A CANCER RADIOTHERAPY EXPERT SYSTEM USING SIMULATION	04A1 120,970 05 126,138 06 132,777
2 R01 LM04251-04	AUTOMATED MEDICAL INFORMATION & DIAGNOSTIC SYSTEM	04 128,206 05 137,416 06 147,213
2 R01 LM04298-04	COMPUTER BASED PATHOLOGY CONSULTATION SUBMODULE	04 97,318 05 104,122 06 122,600
1 R01 LM04617-01A1	STUDIES ON COMPUTERIZED RECORD LINKAGE METHODOLOGY	01A1 25,304 02 24,298 03 27,334
1 R01 LM04856-01	AUTOMATED MEDICAL REPORT RECAPTURE BY MESH TITLES	01 107,405 02 107,975
1 R01 LM04860-01	MODELS FOR CHRONIC DISEASE DATA BANKS	01 38,576 02 40,381
1 R01 LM04864-01	DUALS SECONDARY REVIEW: CA PHYSICIAN-COMPUTER INTERACTION USING GRAPHICS AND SPEECH	01 157,038 02 164,183 03 155,651
1 R01 LM04872-01	DUALS SECONDARY REVIEW: AI A HISTORY OF RHEUMATIC FEVER	01 24,148 02 21,284

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
1 R01 LM04874-01	NEW DISEASES IN THE PACIFIC NORTHWEST, 1774-1874	01 22,921 02 15,140 03 11,430
1 R01 LM04883-01	UNDERSTANDING AND CRITIQUING MEDICAL LITERATURE	01 103,462 02 123,872 03 147,676
1 R01 LM04884-01	DUALS SECONDARY REVIEW: HL REAL TIME LIFE SUPPORT DECISION SYSTEMS	01 290,594 02 340,396 03 332,205
1 R01 LM04886-01	COMPRESSION OF BIOMEDICAL DOCUMENTS AND IMAGES	01 30,722 02 36,196 03 36,575
1 R01 LM04887-01	SELECTED EDITION OF THE LETTERS OF FLORENCE NIGHTINGALE	01 23,957
1 R01 LM04896-01	CLONED DNA BY CHROMOSOME LOCATION	01 48,626 02 54,954 03 60,575

APPLICATIONS APPROVED BY COUNCIL  
(ARRANGED NUMERICALLY BY PROGRAM)  
COUNCIL DATE: JAN./FEB. 1988

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

PROG. CLASS:

APPLICATION NUMBER PROJECT TITLE AMOUNTS RECOMMENDED

1 R15 LM04875-01 POINTER DRIVEN, GRAPHICAL DATABASE INTERFACE FOR DOCTORS 01 49,934

APPLICATIONS APPROVED BY COUNCIL  
 (ARRANGED NUMERICALLY BY PROGRAM)  
 COUNCIL DATE: JAN./FEB. 1988  
 INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE  
 PROG. CLASS:

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
1 R29 LM04892-01	DUALS SECONDARY REVIEW: GM	01 90,860
		02 64,234
		03 68,085
		04 62,783
		05 63,670

APPLICATIONS APPROVED BY COUNCIL - DUAL REVIEW  
(ARRANGED NUMERICALLY)

COUNCIL DATE: JAN./FEB. 1988

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
2 R01 NR00988-04	DUALS SECONDARY REVIEW: LM	04 250,000

HEALTH INSTRUMENT FILE

APPLICATIONS APPROVED BY COUNCIL  
 (ARRANGED NUMERICALLY BY PROGRAM)  
 PROG. CLASS: COUNCIL DATE: JAN./FEB. 1988

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE	APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
	3 G08 LM04411-02S1	IAIMS PILOT IMPLEMENTATION	02S1 199,850
	1 G08 LM04637-01A1	HISTORICAL HEALTH FRAUD COLLECTION	01A1 85,697 02 79,227
	1 G08 LM04834-01A1	IAIMS MODEL DEVELOPMENT - THE IAIMS WORKSTATION	01A1 392,638 02 388,456 03 320,055
	1 G08 LM04868-01	INDEX OF MEDIEVAL MEDICAL IMAGES IN NORTH AMERICA	01 72,336 02 77,473 03 83,075
	1 G08 LM04869-01	IAIMS PLANNING AT THE UNIVERSITY OF PITTSBURGH	01 59,337 02 28,054
	1 G08 LM04879-01	END-USER TRAINING FOR LOCALLY MOUNTED MEDLINE FILES	01 83,500 02 57,208
	1 G08 LM04891-01	MASS. GENERAL HOSPITAL INTEGRATED LIBRARY SYSTEM	01 231,562 02 180,699
	1 G08 LM04893-01	ESTABLISHING AN INTERACTIVE LEARNING RESOURCE CENTER	01 291,466 02 121,175

APPLICATIONS APPROVED BY COUNCIL  
 (ARRANGED NUMERICALLY BY PROGRAM)

COUNCIL DATE: JAN./FEB. 1988

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
1 G07 LM04644-01A1	MEDICAL LIBRARY RESOURCE IMPROVEMENT	01A1 4,000
1 G07 LM04676-01A1	MEDICAL LIBRARY RESOURCE IMPROVEMENT	01A1 3,746
1 G07 LM04857-01	MEDICAL LIBRARY RESOURCE IMPROVEMENT GRANT	01 4,082
1 G07 LM04871-01	MEDICAL LIBRARY RESOURCE IMPROVEMENT	01 4,208
1 G07 LM04895-01	MEDICAL LIBRARY RESOURCE IMPROVEMENT	01 4,000

DEPARTMENT OF HEALTH AND HUMAN SERVICES  
NATIONAL INSTITUTES OF HEALTH  
NATIONAL LIBRARY OF MEDICINE  
Bethesda, Maryland

A G E N D A

88th Meeting of the

BOARD OF REGENTS

9:00 a.m., May 17-18, 1988

Board Room  
Mezzanine of  
National Library of Medicine

MEETING OPEN: All day on May 17 and from 9:00 a.m. to 11:00 a.m. on May 18.  
MEETING CLOSED: From 11:00 a.m. to adjournment on May 18 for the review of grant applications.

- I. CALL TO ORDER AND INTRODUCTORY REMARKS Dr. Edward N. Brandt, Jr.
  
- II. REMARKS BY THE ASSISTANT SECRETARY FOR HEALTH Dr. Robert E. Windom
  
- III. REMARKS BY THE DIRECTOR, NIH Dr. James B. Wyngaarden
  
- IV. CONSIDERATION OF WINTER MINUTES Dr. Edward N. Brandt, Jr.  

TAB I  
(Agenda Book)
  
- V. FUTURE MEETING DATES  

Fall Meeting: October 6-7, 1988 (Th-F)--CONFIRMED  
Winter Meeting: January 26-27, 1989 (Th-F)--CONFIRMED  
Spring Meeting: May 11-12 OR May 25-26, 1989 (Th-F)--PROPOSED

PLEASE NOTE: Medical Library Assoc. Meeting,  
Potential Conflicts May 19-25, 1989 - Boston  
with Spring 1989 Dates. AAMSI May 1989 Meeting (Dates Pending)  
USUHS Graduation May 1989 (Dates Pending)
  
- COFFEE BREAK
  
- VI. REMARKS BY THE DIRECTOR, NLM Dr. Donald A. B. Lindberg  

TAB II

Discussion Board Members



- VII. REPORT ON ACTIVITIES BY THE FRIENDS OF THE NATIONAL LIBRARY OF MEDICINE TAB III Dr. Thomas E. Bryant
- VIII. OUTREACH PLAN TAB IV Mr. Robert Mehnert  
Mr. H. Robert Cathcart and  
Dr. Lois E. DeBakey,  
Discussants  
  
Discussion Board Members
- LUNCHEON CATERED IN CONFERENCE ROOM "B"
- IX. LITERATURE SELECTION TAB V Mrs. Lois Ann Colaianni  
Dr. Albert E. Gunn,  
Discussant  
  
Discussion Board Members
- X. MEDICAL INFORMATICS RESEARCH TRAINING GRANT PROGRAM TAB VI Dr. Edward H. Shortliffe  
Dr. Edward A. Feigenbaum,  
Discussant  
  
Discussion Board Members
- COFFEE BREAK  
(Photograph of Board Members on Front Steps.)
- XI. ERRORS AND SCIENTIFIC FRAUD TAB VII Mr. Sheldon Kotzin  
  
Discussion Board Members
- XII. BOARD OF SCIENTIFIC COUNSELORS REPORT Dr. Gwilym S. Lodwick
- XIII. COMPUTER-BASED EXAMINATION OF THE NATIONAL BOARD OF MEDICAL EXAMINERS TAB VIII Dr. Stephen C. Clymen  
Dr. Michael Ackerman
- XIV. DIRECTOR'S AWARD Dr. Donald A. B. Lindberg
- XV. APPOINTMENT OF NOMINATING COMMITTEE Dr. Edward N. Brandt, Jr.

R E C E S S \* \* \* \* \*

EVENING: DINNER AT LIBRARY OF CONGRESS

Evening Activities:

- 5:30 p.m. - Leave by buses for Library of Congress from Main Entrance of Lister Hill Center Building.
- 6:30 p.m. - WELCOME by Dr. William J. Welsh, Deputy Librarian of Congress.  
- COCKTAILS in Atrium of Madison Building.  
- REMARKS by Dr. James H. Billington, Librarian of Congress.
- 7:15 p.m. - DINNER in the Mumford Room of the Madison Building.
- 8:00 p.m. - PROGRAM ON PRESERVATION, including showing of FILM "SLOW FIRES".
- 9:15 p.m. - Return to NLM Lister Hill Center Building

\*\*\*\*\*

R E C O N V E N E: Wednesday, May 18, 9:00 a.m., Board Room.

- XVI. GATEWAYS AND NETWORKS TAB IX Mr. John Anderson  
Dr. Daniel R. Masys  
  
Discussion Board Members
- XVII. REPORT OF THE ACTING ASSOCIATE DIRECTOR FOR EXTRAMURAL PROGRAMS TAB X Mr. Arthur J. Broering  
EP Subcommittee,  
Discussants  
  
A. Budget and Funding Plans  
B. Biotechnology Review Results  
  
Discussion Board Members
- XVIII. HIGHLIGHTS OF NLM PUBLICATION GRANTS TAB XI Dr. Jeanne L. Brand  
  
COFFEE BREAK

-----

MEETING CLOSED FOR THE REVIEW OF GRANT APPLICATIONS, 11:00 A.M., MAY 18

-----

- XIX. APPLICATION REVIEW (WORKBOOK)
- IAIMS TAB I Dr. Roger W. Dahlen
- A. Over \$100,000 Tab A
- B. Other Tab B
- RESEARCH TAB II
- A. Over \$100,000 Tab A
- B. Other Tab B

FIRST AWARD

TAB III

Dr. Roger W. Dahlen

RESOURCE

TAB IV

IMPROVEMENT

TAB V

PUBLICATION

TAB VI

Dr. Jeanne L. Brand

XX. BIOTECHNOLOGY (Separate Workbook)

Dr. Roger W. Dahlen

A. Over \$100,000

Tab A

B. Other

Tab B

XXI. ADJOURNMENT

Dr. Edward N. Brandt, Jr.

DEPARTMENT OF HEALTH AND HUMAN SERVICES

NATIONAL INSTITUTES OF HEALTH  
NATIONAL LIBRARY OF MEDICINE

BOARD OF REGENTS  
MINUTES OF THE 88TH MEETING  
MAY 17-18, 1988

BOARD ROOM  
NATIONAL LIBRARY OF MEDICINE  
BETHESDA, MARYLAND

DEPARTMENT OF HEALTH AND HUMAN SERVICES  
PUBLIC HEALTH SERVICE

THE BOARD OF REGENTS OF THE NATIONAL LIBRARY OF MEDICINE

Minutes of Meeting 1/ 2/  
May 17-18, 1988

The Board of Regents of the National Library of Medicine was convened for its eighty-eighth meeting at 9:00 a.m. on Tuesday, May 17, 1988, in the Board Room of the National Library of Medicine, Bethesda, Maryland. Dr. Edward N. Brandt, Jr., Chairman of the Board of Regents and Chancellor, University of Maryland - Baltimore, presided. In accordance with P.L. 92-463 and the Determination of the Director, NIH, and as announced in the Federal Register, the meeting was open to the public from 9:00 a.m. to 4:15 p.m. on May 17 and from 9:00 a.m. to 11:00 a.m. on May 18. The meeting was closed from 11:00 a.m. to adjournment at 11:30 a.m. on May 18 for the review, discussion, and evaluation of grant applications. A Board roster is enclosed under Attachment A.

Board members present were:

Dr. Edward N. Brandt, Jr.  
Dr. Steven C. Beering  
Dr. H. Robert Cathcart  
Dr. Don E. Detmer  
Dr. Edward A. Feigenbaum  
Mr. Russell L. Fenwick  
Dr. David T. Kingsbury (May 17)  
Dr. C. Everett Koop (May 17)  
Ms. Nina W. Matheson  
Dr. Grant V. Rodkey  
Dr. Eugene A. Stead, Jr.

Alternates to ex officio members present were:

Dr. Faye G. Abdellah, representing Dr. C. Everett Koop.  
Brig. Gen. Rufus M. DeHart, Jr., representing Lt. Gen. Murphy A. Chesney.  
Col. Howard E. Fauver, representing Lt. Gen. Quinn H. Becker.  
Dr. Harold M. Koenig, representing Vice Admiral James A. Zimble.  
Ms. Karen Renninger, representing Dr. John Gronvall.  
Dr. William J. Welsh, representing Dr. James H. Billington.

Unable to Attend:

Mr. Joseph H. Howard  
Dr. Ann K. Randall  
Dr. Jay P. Sanford

1/ For the record, it is noted that members absent themselves from the meeting when the Board is discussing applications (a) from their respective institutions or (b) in which a conflict of interest might occur. Only when an application is under individual discussion will the Board member absent himself. This procedure does not apply to "en bloc" actions.

2/ The Board of Regents, when considering the extramural programs of NLM, also constitutes and serves as the National Libraries Assistance Advisory Board.

National Library of Medicine staff members attending this meeting included:

Dr. Donald A. B. Lindberg, Director  
Mr. Kent A. Smith, Deputy Director  
Dr. Harold M. Schoolman, Deputy Director for Research and Education  
Dr. Michael Ackerman, Chief, Educational Technology Branch, LHCNBC  
Mr. John Anderson, Director, Information Systems, OD  
Dr. Jeanne Brand, Chief, International Programs Branch, EP  
Mr. Arthur J. Broering, Acting Associate Director for Extramural Programs  
Mr. Kenneth Carney, Executive Officer, OD  
Mrs. Lois Ann Colaianni, Associate Director for Library Operations  
Dr. George J. Cosmides, Deputy Associate Director, SIS  
Dr. Roger W. Dahlen, Chief, Biomedical Information Support Branch, EP  
Mr. Earl Henderson, Deputy Director, LHCNBC  
Ms. Betsy Humphreys, Deputy Associate Director for Library Operations  
Mr. Charles R. Kalina, Special Projects Officer, OD  
Dr. Henry M. Kissman, Associate Director for Specialized Information Services  
Mr. Sheldon Kotzin, Chief, Bibliographic Services Division, LO  
Dr. Daniel R. Masys, Director, Lister Hill National Center for Biomedical Communications  
Mr. Robert B. Mehnert, Chief, Office of Inquiries and Publications Management, OD  
Mr. Arthur Robinson, EEO Officer  
Dr. Elliot R. Siegel, Assistant Director for Planning and Evaluation  
Ms. Susan Slater, Senior Program Analyst, OD  
Mr. Ronald Stewart, Chief, Administrative Management Services, OA  
Mr. Bruno M. Vasta, Chief, Biomedical Files Implementation Branch, SIS  
Mr. Richard T. West, Chief, Office of Program Planning and Evaluation, EP

Others present included:

Dr. Robert E. Windom, Assistant Secretary for Health  
Dr. James B. Wyngaarden, Director, NIH  
Dr. Lois E. DeBakey, Professor of Scientific Communications, Baylor College of Medicine, Consultant  
Dr. Gwilym S. Lodwick, Chairman, Board of Scientific Counselors, NLM  
Ms. Ileen Stewart, Executive Secretary, Special Study Section, NIH  
Dr. Stephen C. Clymen, Medical Evaluation Officer for CBX, National Board of Medical Examiners, Philadelphia  
Dr. Thomas E. Bryant, President, Friends of the National Library of Medicine, Washington, DC  
Dr. Albert E. Gunn, Associate Dean for Admissions, The University of Texas Medical School, Houston, Consultant  
Dr. Edward H. Shortliffe, Associate Professor of Medicine and Computer Science, Stanford University, School of Medicine, Stanford

## I. OPENING REMARKS

Dr. Edward N. Brandt, Jr., Chairman, welcomed the Regents to the 88th meeting of the Board of Regents. He noted especially the presence of new member Dr. Steven C. Beering, President of Purdue University; consultant to the Board, Dr. Lois E. DeBakey; and three special guests on the agenda: Dr. Albert E. Gunn, Dr. Edward H. Shortliffe, and Dr. Gwilym S. Lodwick.

## II. REMARKS OF THE ASSISTANT SECRETARY FOR HEALTH

Dr. Robert E. Windom reported to the Regents about recent activities of the Department in the area of AIDS. There is still much public misconception about the disease, he said, and later this month there will be a massive mailing to all American households (about 107 million) of a new pamphlet, "Understanding AIDS." There were press conferences both in the United States and at the World Health Organization in Geneva; the publicity generated has been overwhelmingly favorable. Dr. Windom spoke about problems in reaching such populations as IV drug users, those who are illiterate, and the homeless. As to current research, there are studies of therapeutic drugs (such as AZT) that are promising; vaccine trials under the aegis of NIH are more long-term in their outlook. There has been tremendous progress in the seven years since the disease was identified. Nevertheless, he said, "the vaccine of education" is still most important. One issue now being debated in the Congress is that of providing sterile needles to IV drug users; data from other countries where this has been attempted are ambiguous, and there are many problems before such a policy could be implemented in this country. A non-AIDS issue currently under debate is that of using fetal tissue resulting from induced abortions for transplantation. A decision has been made not to approve such use of fetal tissue until after a PHS board has studied the matter and issued a report. Finally, Dr. Windom who recently returned from Geneva, reported about World Health Organization matters, including the election of a new Director General and the reduction of U.S. arrears in dues to the organization. The relations between this country and the WHO are good.

## III. REPORT OF THE NIH DIRECTOR

Dr. James B. Wyngaarden reported about recent Congressional budget hearings. The administration's proposed 1989 budget would provide for an increase of 28 percent in AIDS-related research and an increase of 5.4 percent for "all other." Overall, the increase would be from \$6.6 to \$7.1 billion (the "current-services" budget would be \$7.4 billion). This is the best administration budget proposal for NIH in a decade, he said. Dr. Wyngaarden then briefly described several hearings on such subjects as NIH procurement practices, fraud in research, and the human genome project. The last, in which NLM has an important role, is now a high priority at NIH: A new office in the NIH Office of the Director has been created to deal with biotechnology, and an advisory committee has been formed. Also, a new office has been created to coordinate NIH-wide AIDS-related research; such research involves 14 NIH components. At various hearings this spring a number of important additional issues were raised, such as fetal research, animal welfare,

and performance appraisals at NIH. The hearing with the most disturbing implication, however, was that on the subject of misconduct in science. There was the feeling on the part of some that the NIH was not pursuing these issues vigorously enough and that the universities were ignoring them. The belief was expressed by some in the Congress that the system needed tight regulation. Several proposals were made for an "Inspector-General" type mechanism that would have great authority. A Departmental committee is looking into the problem and, although NIH needs a responsive and vigorous system to deal with fraud, it is hoped that Draconian "solutions" can be averted. There will be further hearings on the fraud/misconduct issue. Lastly, Dr. Wyngaarden briefly mentioned that NIH has responded to OMB's request for a study on the issue of privatization as it relates to NIH. An outstanding committee, under the auspices of the Institute of Medicine, has been appointed to conduct the study.

#### IV. REPORT OF THE SURGEON GENERAL

Dr. Koop commented on his recent report and statement to the press about the addictiveness of smoking tobacco. He viewed the increasing restrictions being placed on smokers in public, and the fact that violators are now being prosecuted, as contributing to the public's health. He noted that legislation has been introduced in Congress that would call for warning labels about the addiction potential of tobacco and for limiting access to cigarette vending machines. Following up on Dr. Windom's remarks about difficulty in reaching IV drug users, the Surgeon General discussed the difficulties in getting drug users to participate in a "clean-needle program." The PHS is working with Hispanic and black public relations firms in an attempt to reach this audience.

#### V. CONSIDERATION OF MINUTES OF PREVIOUS MEETING

The Regents approved the minutes of the January 28-29, 1988, meeting with one minor correction on page three: "Professional Standards Review Organizations" is amended to read "Professional Review Organizations."

#### DATES OF FUTURE MEETINGS

The Board will meet next on October 6-7, 1988. The winter meeting was confirmed for January 26-27, 1989. The meeting for next spring was tentatively set for May 11-12, 1989. (The dates were confirmed for June 1-2, 1989, by a mail poll held after the May meeting.)

#### VII. REPORT OF THE NLM DIRECTOR

Dr. Donald A. B. Lindberg introduced several new staff members: Dr. Donald W. King, consultant to NLM on biotechnology activities; Mr. Edwin D. Sequeira, special expert in the Office of Computer and Communications Systems; Mr. Daniel T. Richards, Collection Development Officer in the Technical Services Division; and Mr. Ronald Stewart, Chief of the Office of Administrative Management Services. Dr. Lindberg also announced that two NLM staff members have recently



been honored: Mr. David Kenton of the Office of Computer and Communications Systems, who will receive a special recognition award from PHS; and Dr. Daniel R. Masys, Director of the Lister Hill Center, who was selected by the Surgeon General to receive the PHS Outstanding Service Medal.

As to the budget, Dr. Lindberg reported that the President's proposed 1989 budget (\$70,626,000) is 4% over the actual budget of 1988, but still some \$800,000 less than the amount required to maintain "current services." The recent series of budget hearings in the House and Senate were "friendly"--there was much interest in GRATEFUL MED and in NLM's outreach programs. The Director described briefly the status of current legislation in the Congress on biotechnology and recent hearings on the subject at which he and Dr. Wyngaarden testified. In February, the NLM established the National Center for Biotechnology Information Branch within the Lister Hill Center; Dr. Dennis Benson has been named chief of the branch. Further on legislation: the Medical Library Assistance Act, the legislation that authorizes NLM's grants program, is up for renewal. Among the changes proposed by the Senate: increase the appointed members on the Board of Regents by three, return to having the Regents appointed by the President (rather than the HHS Secretary), restore the authority to make grants for library construction, and eliminate the \$500,000 cap on resource grants. The proposed legislation would reauthorize the Act for three years at a level of \$14 million in FY 1989 and such sums as necessary for subsequent years. The bill has been reported favorably by committee; there has been no action in the House.

Dr. Lindberg reported on the recent regional meetings of the Advisory Committee to the NIH Director. The purpose of the regional meetings was, first, to explain to scientists in the field the process by which biomedical research is funded and, second, to hear from the scientists how the process could be improved. Dr. Lindberg participated in two of the meetings--in Dallas and Atlanta. Finally, Dr. Lindberg reported briefly on the status of the Unified Medical Language System, begun almost two years ago. Several interim products, such as the latest version of GRATEFUL MED, have already appeared. NLM looks forward during the third and fourth years to begin actually building the system with the assistance of research collaborators.

Dr. Lindberg was asked by Dr. Feigenbaum to comment on how the Library is doing in its "market niche" as an electronic library. The Director commented that in fact there is a dearth of information about our users--who they are and how they use NLM's services. As a Federal agency, the Library does not have a sales force, commission agents, field representatives, or an advertising department. However, NLM hopes to learn much more about its users through the outreach program. Next year in Congressional hearings, when he is asked (as he was this year) what percent of American doctors use NLM services, he hopes to have an answer. As to "product improvement," another aspect of maintaining a market niche, the Director noted that GRATEFUL MED has gone through three successively useful versions--and more are planned. Ms. Matheson commented that the NLM does have field representatives in a sense--namely those in the Regional Medical Library Network.

## VIII. FRIENDS OF THE NATIONAL LIBRARY OF MEDICINE

Dr. Thomas E. Bryant, President of the Friends of the National Library of Medicine, reported to the Board on the history, purposes, organization, and current activities of the Friends. The Chairman of the Friends Board of Directors is Edwin C. Whitehead, founder of Technicon. Although the organization is only two years old, today there are more than 1,000 individual and 100 corporate and institutional members. The two largest categories of individual members are physicians and medical librarians; the American Medical Association and the American Hospital Association have been major supporters. One of the primary goals of the organization is to help make the resources and services of the Library better known within the medical/health community. The Friends of the NLM has sponsored public service announcements about the Library in medical journals; the volume of write-in responses for additional information is increasing daily, Dr. Bryant said. The Friends has also sponsored special events, such as the program/banquet for U.S. Nobel laureates in medicine held in Washington in November 1986. This event focused much favorable attention on the Library. One audience the Friends may target for membership, with the help of the AMA, is that of medical students. Dr. Bryant concluded by noting that there is a gratifyingly high 80 percent renewal rate among the members.

## IX. NLM OUTREACH PROGRAM

Mr. Robert Mehnert, Chief of NLM's Office of Inquiries and Publications Management, reported to the Regents on recent activities relating to public affairs. With the new legislative mandate directing the NLM to publicize its programs and services, such activities are now more important than ever. One impetus for these activities was the considerable nationwide exposure for the Library during its Sesquicentennial celebration in 1986. It is important now to continue that momentum. As Dr. Lindberg noted in his Congressional testimony earlier this year, there are two aspects to NLM outreach activities: first, NLM services must be capable of serving all American health professionals, no matter where they are located, and second, health professionals must be informed of NLM's services so they may opt to use them. The latter--increasing health professional awareness--is the goal of the outreach program with which he is concerned, Mr. Mehnert said.

Among recent activities in this area he reported on are: the usage by television stations of the video news release on NLM services in a toxic spill emergency (shown at the last Regents' meeting); a series of vignettes is now being readied for airing over the Discovery cable network's "Eye on Medicine" series (the first two videotaped vignettes were shown to the Board); a radio message about GRATEFUL MED will be made available through a new NIH radio service being started this summer, whereby radio stations can make a toll-free call to receive a one-minute message, suitable for rebroadcast, about current NIH research or programs; the usage by 200 newspapers around the nation of two news items on the NLM campaign to increase the use of permanent paper in medical publishing; a new policy setting forth a rational plan for NLM exhibits at professional meetings; the current status and

plans for improvement of the NLM/NIH Information Service--a bulletin board on the AMA's AMANET network; the planning for the June 9th NLM Symposium on Physical Fitness and Sports Medicine; four press releases issued by the Library since the last Board meeting; and the production of foreign language versions of the NLM film "Communicating for Health" (in Chinese, Japanese, and Spanish). Mr. Mehnert concluded by describing the need for early steps to prepare an integrated plan for NLM outreach activities. NLM is now defining specific goals for such a plan and preparing to gather the baseline data necessary if NLM is to measure progress toward the goals.

Following Mr. Mehnert's presentation, Mr. Cathcart, Chairman of the Board Subcommittee on Outreach, noted that the Subcommittee had recommended that because resources for outreach were limited, the NLM focus its efforts and concentrate on certain groups of younger professionals such as residents and master's level nurses. The NLM should try to reach them in their clinical settings where there is a powerful competitive spirit among the students to excel. He reiterated the need for baseline data of who makes use of the NLM's services--even to the point of using much of the first year's outreach resources to find out who is using the NLM and for what purposes. As Dr. Lois DeBakey has pointed out, there should be continuing close coordination of NLM's outreach efforts with related activities of the Friends of the NLM. Mr. Cathcart affirmed that the new legislative language offers the Library a great opportunity. Dr. DeBakey, also on the Subcommittee (as a consultant), said that the Subcommittee hoped the Regents might be able to offer suggestions about how to engage in outreach activities. She repeated that the NLM must have a "well formulated, clearly delineated, and coherent program." "If we try to do too many things at one time, we may do none of them as successfully as we like." The Subcommittee, she said, also noted that the Regional Medical Libraries can be of immense help in NLM's outreach efforts.

Dr. Detmer agreed with the idea of targeting residents; he added that "institutional" outreach is important in the sense that NLM per se should not be pushed, but that what it stands for is important--getting "the right information to persons who need it when they need it." He suggested that vignettes could be prepared (perhaps by the Friends) that show, for example, how a Nobelist's seminal findings have been distributed logarithmically through the literature--with NLM's services playing a crucial role. Dr. Detmer said that it makes sense for the NLM to target its message to students and residents in the final stage of training before they move out into the professional world. Dr. Shortliffe commented that the way to reach students and residents is not through an institution's library but through the junior faculty and attending physicians; if they could be reached, it would have a great effect on students and residents. He also noted that the commercial television ad [done in 1979 by ITT] that was aired repeatedly nationwide in prime time, probably has done more to acquaint the general public with the NLM than any single piece of publicity. If possible, the NLM should investigate the possibility of doing something similar, with another corporation. Dr. Bryant of the Friends of the NLM noted that this is an area in which that organization might be helpful; in fact, he is now talking to corporate representatives about doing such ads. Dr. Brandt commented that one key to outreach is to get the local health science libraries heavily committed. He said that

on every service there were two or three young professionals that all the residents look up to as being the "smart clinicians." The librarian, working with the chief of the service, should be able to identify those people and make sure that they are approached. Dr. Brandt also said that graduate students in the biomedical sciences and post-doc research fellows are two critical groups that must be reached with the message. The medical librarians themselves must be heavily committed to putting time and effort into reaching these target audiences. Dr. Shortliffe suggested that one way to ensure that online searching, for example, is taught in the medical school curriculum, is to see that questions about it are included in the medical board exams. Dr. Lindberg said that this is a long-term project that is being explored.

## X. LITERATURE SELECTION

Mrs. Lois Ann Colaianni, NLM Associate Director for Library Operations, reported that a "Literature Selection Technical Review Committee" has been formally established and that after her presentation, Dr. Gunn, the chairman of that committee, would report on its first ad hoc meeting. Mrs. Colaianni said that there are three to five times as many journals published in biomedicine as are indexed for MEDLINE. The problem facing NLM (and the committee) is, which journals are so valuable and useful that they should be indexed? She described briefly how NLM had in the past used an ad hoc group of consultants to select journals for indexing in Index Medicus (and MEDLARS). The number of articles indexed annually grew over the years: In 1967 about 164,000 were indexed; by 1987 that figure had grown to 316,688. In addition to the increase in literature there is an increasing interest on the part of publishers to have their journals indexed by the Library.

A formal NIH committee was established in 1987 which consists of 12 authorities, knowledgeable in the biomedical field. The committee includes physicians, researchers, educators, editors, health science librarians, and historians, each appointed to staggered terms of two, three and four years. Eventually, all new members will be appointed for four years. The purpose of the committee is "to advise the Director of NIH and the Director of NLM on matters of policy as they relate to the evaluation and recommendation of biomedical publications to be considered for indexing and inclusion in the NLM publications such as Index Medicus and MEDLINE. The committee will be responsible for reviewing publications on the basis of a) the extent to which their subject matter falls within the scope or subject range of NLM publications and electronic databases and, b) the potential value to users of the NLM products, including the clinical and scientific significance of the information in the publications." Mrs. Colaianni briefly described the process by which new titles are selected for indexing: a worksheet containing factual information about each title is prepared by NLM staff--frequency of publication, where it presently is indexed, the number of journals now indexed by NLM in the subject, information about authors and editors, whether the articles represent work funded by grants, the scope of impact, quality of paper, illustrations, and writing, and evidence of peer review (if it is peer reviewed). One member of the committee is designated the primary reviewer for a group of titles. After review, the committee recommends

whether NLM should index the title, and, if it is recommended, assigns a priority. That is the procedure for new titles; the procedure for the continuing review of existing titles is somewhat different, although still evolving. It involves assistance from professional societies to answer the questions: What titles in your specialty are useful to researchers, clinicians, and educators? Which of the titles in this field that NLM acquires are of high, medium, or low use? What titles in other fields are useful in your specialty? Two societies in family medicine were approached this year to conduct such reviews; more are scheduled in radiology and nuclear medicine, geriatrics, and biochemistry and biotechnology.

Mrs. Colaianni said that a number of issues remain to be resolved. For example: What geographic distribution of titles is best--how much foreign literature do we need? How much coverage should there be in any one subject? For what subjects should health professionals be directed to other databases? What should be the balance between research and clinical literature? Between specialty and nonspecialty literature? What are the criteria for determining quality of content? As nonprint formats become more important, there will be a new set of specific requirements for these. Mrs. Colaianni, in responding to questions from the Regents, made a number of points: as a result of the selection procedure, in all probability, more journals will be added than will be dropped; the Library has recently increased the scope of its collection in the area of biotechnology (and a half dozen biotechnology journals have just been selected for indexing).

Following her presentation, Dr. Albert Gunn, chairman of the Literature Selection Technical Review Committee (and former member and chairman of the Regents) noted that although the committee is officially established, the tenure of the current members does not begin until July 1. The committee must keep uppermost among its attributes that of fairness--both in reality and in the perception of observers. Although the journal selection meetings will not be open to the public, the committee's decisions must be based on rational criteria and must be publicly defensible. He said that the committee will develop and observe a code of ethics to prevent members from reviewing journals in which they have a conflict of interest. One particularly sensitive issue will be recommending the dropping of journals that are presently indexed which are no longer high-use or quality journals in a particular subject area.

## XI. MEDICAL INFORMATICS RESEARCH TRAINING GRANTS

Dr. Edward H. Shortliffe, who directs one of the major NLM training grants in medical informatics at Stanford University, introduced his topic by describing the new discipline known as "medical informatics." The challenge of medical informatics is to understand the nature of medical knowledge and data, in particular how they might be encoded, manipulated, and used in order to improve the way we do research or solve clinical problems. Medical knowledge and data may be represented in the computer and combined or otherwise manipulated to assist in reaching a conclusion; or the computer may simply be used to retrieve stored information. Dr. Shortliffe used slides to illustrate the processes and research themes of medical informatics--for example, how

to draw conclusions using the data of medicine, improving literature retrieval, helping with diagnosis and treatment planning, assisting in teaching, and something called the "human interface" (which has both cognitive and computer interaction issues). He referred to the Long-Range Planning Panel that looked at medical informatics (Panel IV), listed the research areas the panel identified, and showed how these issues fit in with the schematic plan he presented.

Dr. Shortliffe then turned to training in medical informatics. The discipline, he said, suffers from a lack of trained professionals. He identified a number of what he called "logistical issues"--identifying national leadership (NLM is increasingly being looked at as the leader in medical informatics in general and for supporting training in the field), the need for practical training of health professionals in computer-related issues, networking technologies and institutional planning, and integrated computing environments. In order to achieve a progressive program in medical informatics, Dr. Shortliffe said, academic centers must integrate and expand a number of diverse functions. First, there is the role of an academic unit in medical informatics in the schools of the health professions to teach students and to work with faculty. In some schools, there should also be formal programs of the sort that NLM is now supporting--to train faculty that will migrate to other medical schools to fill positions in these academic units. There is a great need to integrate institution-wide information systems (such as exist in large hospitals), departmental information and data systems, and the desktop computers that are increasingly used by health professionals. There are few people who can do this. There are computer scientists who know little about medicine; there are physicians who have learned a bit about computing; but you are unlikely to find many professionals who have an integrated sense of how these fields interrelate. That is the exciting potential of programs such as that at Stanford.

Dr. Shortliffe briefly listed the topics being taught in the programs in medical informatics being funded by NLM: computer science (hardware and software) for those whose background does not include it, and clinical and basic science for those without a substantial biomedical background. For example, nonphysicians entering the programs learn quite a bit of physiology, anatomy, clinical diagnosis, medical laboratory science, etc. Such related topics as decision sciences, biostatistics, epidemiology, and bioengineering are also taught. At Stanford, Dr. Shortliffe said, the training environment is structured so that all students are required to get a degree--master's or doctoral. He summarized the backgrounds of the 20-25 medical informatics students there, and discussed the challenge of recruiting minority and female candidates to the program.

Following Dr. Shortliffe's presentation, Dr. Feigenbaum commented that computer science as applied to medical subjects (medical informatics) is a highly interdisciplinary field. Such fields generally do not fit well into traditional academic departments--hence the special importance of the NLM-sponsored traineeship programs. NLM and Dr. Lindberg deserve credit for having moved these programs forward in recent years, but continued support is crucial if the programs are to achieve critical mass and become self-perpetuating. We need to identify and fund "champions" of medical informatics--those

individuals with boundless energy, creative imagination, and good political skills who can make the program successful within an institution. Finally, Dr. Feigenbaum said, there is a need for more research support for medical informatics. NIH components, except for the NLM, do not provide enough support. The unfortunate result is that the medical informatics faculty and their brilliant graduates are competing for a fixed-size pie.

## XII. ERRORS AND SCIENTIFIC FRAUD

Mr. Sheldon Kotzin, Chief of NLM's Bibliographic Services Division, reported on the steps NLM has taken in recent years to inform users of Index Medicus and MEDLINE about errors in articles indexed, some resulting from deliberate fraud, others inadvertent. Fewer than one percent of the 316,000 articles indexed last year by NLM were retracted or contained error notices. However, the potential impact of inaccurate information can be great. A retraction may be issued by an author, editor, or academic official, usually in the form of a letter to the editor or an editorial stating that deliberately falsified or unsubstantiated data were used in the article. Although fraud in science certainly is not new, it is only in the last decade or so that it has attracted the attention of scientists and the public. As a result, NLM has taken a number of actions to keep its widely used products as error-free and accurate as possible. In 1984, the Library announced a policy for identifying and indexing published retractions. Some suggested that the Library should excise citations to fraudulent articles from the database, but NLM chose to link the retracting article with the original article, preserving historical veracity while providing a clear warning to users. Mr. Kotzin showed slides of original and retracting citations and described how the retracting reference is indexed. To date, only 64 retractions have appeared in MEDLINE. The NLM policy works well with clearly labeled retractions, but there is a continuing problem with editors publishing not-quite-retractions (labeling data "questionable," for example) and with editors who refuse to publish retractions at all. The Library plans to deal with this problem soon by alerting users to the existence of a published critical comment about an earlier article, frequently published in the form of a letter often followed by a response by the author of the referent article. NLM hopes to have a "commentary policy" in place in 1989.

Mr. Kotzin next addressed the problem of errata or scientific errors in the text or abstract of an article that NLM indexes. Some 200 substantive errata are uncovered by NLM indexers each month. Although no deliberate misrepresentation is at issue, NLM believes it has a responsibility to notify its users of such errors and to make corrections where possible. Mr. Kotzin showed examples of such errata and described how, in each instance, the Library corrected the error. NLM policy permits only citable errata to be acknowledged; the notice must be clearly labeled and printed in the journal. Such errors are relatively rare; in 1987, correction notices were added to only 0.8 percent of the MEDLINE records (2,800 of 316,000).

Dr. DeBakey said that an effort should be made, perhaps through the group of journal editors who issue the "uniform requirements" for medical journal articles, to require editors to publish retractions where this is indicated. Editors are gatekeepers and have a responsibility to ensure to the extent possible that articles contain valid and accurate information. An editor's willingness to issue a retraction should be part of this responsibility, she said. She also suggested that "plagiarism" and "duplicate publication" were two specific vocabulary terms that might be represented in the NLM's MeSH (Medical Subject Headings).

#### XIII. BOARD OF SCIENTIFIC COUNSELORS

Dr. Gwilym S. Lodwick, Chairman of the Board of Scientific Counselors, said that the Board reviewed two Lister Hill Center (LHC) projects at its meeting two weeks ago: Geninfo and Online Reference Works (IRX). Both concern, in one way or another, the human genome. The Board of Scientific Counselors believes that both projects represent state-of-the-art work and that NLM should be congratulated for helping to solve such important problems in medical research and, at the same time, advancing the cause of medical informatics. The Geninfo project aims at solving four problems faced by users of molecular biology computing systems: (1) helping resolve the problem of different access methods needed to use different factual databases, (2) making retrieval systems easier to use by molecular biologists, (3) overcoming the semantic and syntactic isolation of different molecular biology databases, and (4) making retrieved data usable for various types of analysis software. The Scientific Counselors strongly endorse these goals as significant, timely, and realistic. The Board made specific recommendations on relative priorities within Geninfo and suggested several criteria on which Geninfo should be evaluated. The second project reviewed by the Board of Scientific Counselors--the Online Reference Works (IRX)--has resulted in putting online Dr. Victor McKusick's work, Mendelian Inheritance in Man. It is available online to researchers around the country. The Counselors said that although many of the project's goals set forth in 1986 have been realized, online text retrieval is still a high priority area for the LHC. It will be important, however, to choose a new text for Online Reference Works that pushes the technology, links active researchers and clinicians, or that enables systems evaluation.

#### XIV. COMPUTER-BASED EXAMINATION OF THE NATIONAL BOARD OF MEDICAL EXAMINERS

Dr. Michael Ackerman, Chief of the Lister Hill Center's Educational Technology Branch, reported that the National Board of Medical Examiners has decided to have Part 3 of the exam administered by computer simulation. A conference was held at the National Board (in Philadelphia) in March where representatives of medical schools saw a demonstration of parts of the proposed computer-based examination (CBX). Dr. Ackerman and Dr. Stephen Clymen, who is the medical evaluation officer for CBX, did a computer demonstration for the Regents of one of the 125 simulation cases in the examination.



## XV. DIRECTOR'S AWARD

Dr. Lindberg presented the 1988 NLM Director's Award to Betsy Humphreys, Deputy Associate Director for Library Operations. Ms. Humphreys was cited for her contributions to the development of the Unified Medical Language System.

## XVI. REPORT OF THE NOMINATING COMMITTEE

The Nominating Committee for Chairman of the Board of Regents placed in nomination the name of Dr. Edward N. Brandt, Jr., who was subsequently unanimously elected to his second term as Chairman.

## XVII. GATEWAYS AND NETWORKS

Mr. John Anderson, Director of Information Systems, brought the Board up to date on gateways and networks, a subject about which the Regents had been briefed twice in the past. The networks referred to are TELENET, TYMNET, ARPANET, BITNET, NSFNET, and similar networks. After Mr. Anderson's brief remarks, Mr. Edwin Sequeira demonstrated a working model of gateway between two distinct NLM online systems--MEDLARS/MEDLINE and TOXNET. The gateway, as demonstrated to the Regents by Mr. Sequeira, using a SUN workstation, established simultaneous sessions between two distinct computer retrieval systems (operating on two different host computers). In the future, as NLM expands the gateway's capabilities, it may be possible to establish simultaneous sessions with a number of host computers, both within and outside of NLM. Eventually, NLM hopes it will be possible not only to search databases through such simultaneous access, but also to provide aids to the user in displaying output, sorting out duplicates, reformatting the retrieval for convenience and readability, etc. Mr. Anderson noted that the Unified Medical Language System (UMLS) may turn out to be ideally suited as the vehicle for providing simultaneous access--not only eventually to network users but in the interim to the developers of the UMLS itself. Before the full power of such a gateway could be unleashed, NLM would have to establish agreements with a variety of outside organizations who would like to have their databanks "gatewayed" to NLM's user community and NLM's databanks available to their users.

Following the gateway demonstration, Dr. Daniel Masys reported on NLM's participation in various computer networks. He enumerated a number of functions of such networks, for example, electronic mail, transferring data files, remote computing (such as is provided by MEDLINE), and sharing computer devices (disk drives, printers, etc.). There are two broad categories of computer networks--local area networks, or "LANs," that require some kind of interconnecting wire or cable, and wide area networks (both commercial and academic) which may connect computers thousands of miles apart. The capabilities of the telephone-based commercial networks, such as TELENET and TYMNET (which handle most of the MEDLINE usage), are well matched to bibliographic searching but are insufficient for such increasingly data-intensive biomedical applications as sending x-rays. Dr. Masys briefly described the Defense Department's 20-year-old ARPANET, the first of the high-speed networks. The protocols and standards established by ARPANET are now

standard for many networks, including LANs. A number of other networks in the U.S. and other countries have since been established. The most recent move in this area is by the National Science Foundation which has expressed its intention to become the common carrier of the academic community by expanding its NSFNET. The protocols and standards used by these networks, called collectively the "research internet," differ substantially from those of the commercial carriers such as TYMNET and TELENET. There are several low level gateways between the two now being tested. NLM, Dr. Masys said, is a microcosm of all the major currents of networking. Using slides, he showed how NLM is widening successively the circle of its interconnectivity-- including the existing broadband LAN linking the two NLM buildings; the research ETHERNET used by Lister Hill Center technical staff; the 56-KB line connecting the LHC, the Clinical Center, and the NCI super-computer in Frederick, Maryland; a similar 56-KB line to NIH's Division of Computer Research and Technology (DCRT) which gives access to regional and wide area network resources; ARPANET; and the evolving NSFNET (through the links to Frederick and DCRT).

Commenting on Dr. Masys's presentation, Dr. Feigenbaum said that the subject of gateways and networks will become increasingly important to the Library. There are "spectacular" problems, he noted. As Dr. Masys said, the research internet users, who number at most 250,000, cannot talk to anyone on, for example, MCI mail, GE mail, TELENET, etc. Also, there are no "electronic white or yellow pages," so one has no idea who else might be reached electronically.

Dr. Brandt said that NLM should encourage NIH to get involved in the area of developing research networks. It would be useful, he said, to schedule a discussion on this subject at an upcoming Board meeting.

### XIII. REPORT OF THE ACTING ASSOCIATE DIRECTOR FOR EXTRAMURAL PROGRAMS

Mr. Broering reported that the Medical Library Assistance Act is up for renewal this year. Some of the changes in the new legislation, introduced by Senator Kennedy, were mentioned already by Dr. Lindberg the previous day; they included the elimination of the \$500,000 limit per award for the Resource Grants Program and the reinstatement of the construction grant authority, which was repealed in 1974. Under the general legislation, a change was included in the Kennedy Bill that would allow the Library to participate in the small grants program, already in operation at NIH. This program would permit funding of small proposals, after initial merit review, without final review by the Board of Regents. The Board will be asked for its recommendation on this subject after passage of the bill, most likely at the fall meeting.

Mr. Broering noted that a meeting has been scheduled for the end of June regarding the redesign of the Resource Grants Program. Discussions will include the education and training needs of medical librarians. Proposed modifications of the program will be brought to the Board in October for discussion and recommendation.

As discussed at the January meeting, NLM utilizes funds authorized under Section 301 of the Public Health Service Act for the Medical Informatics and Biotechnology Programs. However, only \$400,000 remain for new Medical Informatics awards in FY 1988. NLM will therefore make

reductions in the noncompeting grant area, not to exceed ten percent per individual award. The additional \$800,000 will enable the Library to fund approximately four new awards this year in this program area.

In the Biotechnology area, the one million dollars appropriated will fund from six to eight applications at an average cost of \$125,000 to \$167,000. In April, a special ad hoc committee reviewed 35 biotechnology applications of which 24 were approved for a total of \$2.7 million, and 11 were disapproved. The applications were received from a variety of profit-making and nonprofit academic research institutions.

#### XIX. HIGHLIGHTS OF NLM PUBLICATION GRANTS

Dr. Jeanne L. Brand, Chief, International Programs Branch of NLM's Extramural Programs, briefly reviewed NLM's Publication Grant Program before highlighting some of the more significant publications which have reached print with support from the program. She stated that the MLAA (Medical Library Assistance Act) authorizes support for the preparation and publication of a variety of not-for-profit biomedical scientific publications. Profit-making studies, such as textbooks, are excluded from support. The publications address an audience of health professionals--not the general public--and include biomedical scientists and educators, health practitioners, medical historians, medical librarians and other health communications specialists. NLM tries to encourage the support of projects related to health care delivery and works not only with research investigators, but also with university presses. Because of the fiscal constraints in this program, Publication Grants are limited to a maximum support of three years at an annual direct cost of no more than \$25,000. They had an average project length in the past five years of 1.6 years.

Since the start of this program in FY 1966, 532 awards, totaling \$11,435,351, have been made. Funding in FY 1987, however, was only about 40 percent of that available in FY 1978. In consequence, Dr. Brand noted, the number of Publication Grants is substantially less than in the early years of the program. In FY 1987, for example, 33 percent of the total funding went for critical, analytic reviews of the literature, identifying the present status of research or practice in various health fields. Another large category, as part of the Library's role in the preservation of knowledge, is projects in the history of medicine. Nine projects were awarded in this field. Dr. Brand continued by highlighting examples of significant books produced under this program, including brief excerpts of book reviews, illustrating their reception in the respective scientific communities.

In conclusion, Dr. Brand stated that it has been very satisfying to the staff to work with this program, to see direct products from the funding invested, and to monitor the reception of studies in book reviews.

-----  
MEETING CLOSED FOR THE REVIEW OF GRANT APPLICATIONS, 11:00 A.M., MAY 18, 1988  
-----

**XX. REVIEW OF PENDING APPLICATIONS**

Before proceeding with the consideration of pending applications, Dr. Roger W. Dahlen, Chief, Biomedical Information Support Branch, EP, informed Board members of confidentiality and conflict-of-interest procedures and reminded them to sign, at the conclusion of the grant application review, the statement noting that they had not participated in the discussion of any application which presented a conflict of interest.

The Board reviewed 78 applications, requesting \$33,219,891, and recommended for approval 50 applications in the amount of \$16,259,511 for the total years requested. Twenty-eight applications in the amount of \$9,213,774 were disapproved. Grant applications recommended for approval by the Board are listed in the summary actions (Attachment D). Interim actions taken by the Extramural Programs staff since the January meeting were considered by the Board's Extramural Programs Subcommittee and noted and concurred with by the Board of Regents.

**XXI. ADJOURNMENT**

The meeting was adjourned at 11:30 a.m. on Wednesday, May 18, 1988.

\*\*\*\*\*

- Monday, May 16, 1988, 2:00 to 3:00 p.m.  
(Program Outreach Subcommittee--List of Attendees under Attachment B)
- Monday, May 16, 1988, 2:00 to 3:30 p.m.  
(Extramural Programs Subcommittee--List of Attendees under Attachment C)
- Tuesday, May 17, 1988, 9:00 a.m. to 4:15 p.m.
- Wednesday, May 18, 1988, 9:00 to 11:30 a.m.

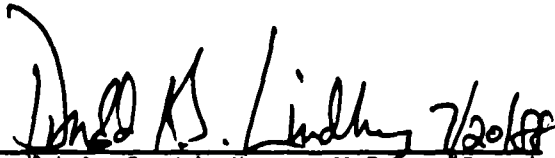
\*\*\*\*\*

**ACTIONS TAKEN BY THE BOARD OF REGENTS**

1. The Board concurred with recommendations of the Extramural Programs Subcommittee. Grant applications for approval are listed in the summary actions (Attachment D).
2. The Board reelected Dr. Edward N. Brandt, Jr. to a second term as Chairman.

\*\*\*\*\*

I hereby certify that, to the best of my knowledge, the foregoing minutes and attachments are accurate and complete.

  
 Donald A. B. Lindberg, M.D. (Date)  
 Executive Secretary

  
 Edward N. Brandt, Jr., M.D., Ph.D. (Date)  
 Chairman

**BOARD OF REGENTS OF THE NATIONAL LIBRARY OF MEDICINE****CHAIRMAN**

**BRANDT, Edward N., Jr., M.D., Ph.D. (8/3/89)**  
 Chancellor  
 University of Maryland at Baltimore  
 520 West Lombard Street  
 Baltimore, MD 21201 301-328-7002

<b>BEERING, Steven C., M.D. (8/3/91)</b> President Purdue University West Lafayette, IN 47907 <u>317-494-9708</u>	<b>MATHESON, Nina W. (8/3/90)</b> Director William H. Welch Medical Library Johns Hopkins University School of Medicine 1900 East Monument Street Baltimore, MD 21205 <u>301-955-3411</u>
<b>CATHCART, H. Robert (8/3/90)</b> President Pennsylvania Hospital Eighth and Spruce Streets Philadelphia, PA 19107 <u>215-829-3312</u>	<b>RANDALL, Ann K., D.L.S. (8/3/89)</b> Professor and Chief Librarian The City College of CUNY 5333 North Academic Center 138th Street and Convent Avenue New York, NY 10031 <u>212-690-4271</u>
<b>DETMER, Don E., M.D. (8/3/91)</b> Vice President for Health Affairs University of Virginia Box 179, Medical Center Charlottesville, VA 22908 <u>804-924-2444</u>	<b>RODKEY, Grant V., M.D. (8/3/88)</b> Assoc. Clinical Professor of Surgery Harvard Medical School 25 Shattuck Street Boston, MA 02115 <u>617-742-4180</u> <u>Mailing Address:</u> 15 Parkman Street, Suite 134 Boston, MA 02114
<b>FEIGENBAUM, Edward A., Ph.D. (8/3/90)</b> Professor of Computer Science Computer Science Department Stanford University, HPP Bldg. C Stanford, CA 94305 <u>415-723-4878</u>	<b>STEAD, Eugene A., Jr., M.D. (8/3/88)</b> Prof. Emeritus of Medicine Duke University Duke Hospital - P.O. Box 3910 Durham, NC 27710 <u>919-684-6587</u>
<b>FENWICK, Russell L. (8/3/88)</b> Senior Vice President (Retired) Bank of America 12015 Mesa Verde Drive Valley Center, CA 92082 <u>619-749-7450</u>	

**EX OFFICIO MEMBERS****Primary****Alternate**

**BECKER, Quinn H., Lt. Gen., MC, USA**  
 The Surgeon General  
 Department of the Army  
 5111 Leesburg Pike  
 Falls Church, VA 22041-3258

703-756-0000

**FAUVER, Howard E., Col., MC, USA**  
 Chief  
 Graduate Medical Education Branch  
 U.S. Army Health Professional Support  
 Agency (SGPS-EDM)  
 5109 Leesburg Pike  
 Falls Church, VA 22041-3258

703-756-8036

Board of Regents Roster (Continued)

<b>Primary</b>	<b>Alternate</b>
<b>BILLINGTON, James H., D.Phil.</b> Librarian of Congress Library of Congress 10 First Street, S.E. Washington, DC 20540 <u>202-287-5205</u>	<b>WELSH, William J., LL.D.</b> Deputy Librarian of Congress Library of Congress James Madison Memorial Bldg., Rm. 608 10 First Street, S.E. Washington, DC 20540 <u>202-287-5215</u>
<b>CHESNEY, Murphy A., Lt. Gen., USAF, MC</b> Surgeon General Department of the Air Force Bolling Air Force Base Washington, DC 20332-6188 <u>202-767-4343</u>	<b>DeHART, Rufus M., Jr., Brig. Gen., USAF, MC</b> Director, Professional Affairs and Quality Assurance (SGP) Bolling Air Force Base Washington, DC 20332-6188 <u>301-767-1849</u>
<b>GRONVALL, John, M.D.</b> Chief Medical Director Veterans Administration Dept. of Medicine and Surgery 810 Vermont Avenue, N.W. Washington, DC 20420 <u>202-233-2596</u>	<b>RENNINGER, Karen</b> Chief, Library Division 142D Veterans Administration 810 Vermont Avenue, N.W. Washington, DC 20420 <u>202-233-2711</u>
<b>HOWARD, Joseph H.</b> Director, National Agricultural Library U.S. Department of Agriculture 10301 Baltimore Boulevard Beltsville, MD 20705 <u>301-344-4248</u>	
<b>KINGSBURY, David T., Ph.D.</b> Asst. Director for Biological, Behavioral, and Social Sciences National Science Foundation 1800 G Street, N.W., Room 506 Washington, DC 20550 <u>202-357-9854</u>	<b>BROWNSTEIN, Charles N., Ph.D.</b> Director, Directorate for Computer and Information Science & Engineering National Science Foundation 1800 G Street, N.W. Washington, DC 20550 <u>202-357-7936</u>
<b>KOOP, C. Everett, M.D., Sc.D.</b> Surgeon General, PHS, and Director, Office of International Health 200 Independence Avenue, S.W. Washington, DC 20201 <u>202-245-6467</u>	<b>ABDELLAH, Faye G., Ed.D., Sc.D.</b> Deputy Surgeon General, PHS Parklawn Building, Room 18-67 5600 Fishers Lane Rockville, MD 20857 <u>301-443-4000</u>
<b>SANFORD, Jay P., M.D.</b> Dean, Uniformed Services University of the Health Sciences F. Edward Hebert School of Medicine 4301 Jones Bridge Road Bethesda, MD 20814-4799 <u>301-295-3013</u>	
<b>ZIMBLE, James A., Vice Adm., MC, USN</b> Surgeon General Office of the Chief of Naval Operations (OP-093) Department of the Navy Washington, DC 20350-2000 <u>202-697-0587</u>	<b>KOENIG, Harold M., Capt., MC, USN</b> Commanding Officer, Naval Health Services and Education Command Department of the Navy Bethesda, MD 20814-5022 <u>301-295-0293</u>

**EXECUTIVE SECRETARY**

**LINDBERG, Donald A. B., M.D.**  
Director  
National Library of Medicine  
Bethesda, MD 20894  
301-496-6221

PROGRAM OUTREACH SUBCOMMITTEE

May 16, 1988

2:00 to 3:00 p.m.

A T T E N D E E S

Subcommittee Members Present:

Mr. H. Robert Cathcart, Chairman  
Ms. Karen Renninger  
Dr. Lois E. DeBakey

Unable to Attend:

Dr. Faye G. Abdellah

NLM Staff Present:

Mr. Kent A. Smith, Deputy Director  
Dr. Harold M. Schoolman, Deputy Director for Research and Education  
Mr. Robert B. Mehnert, Chief, Office of Inquiries and Publications  
Management, OD  
Mr. Charles R. Kalina, Special Projects Officer, OD

Members were briefed by NLM staff and discussed the following items:

- The Subcommittee heard brief reports on the TOXNET video news release, permanent paper newspapers columns, usage of the NLM/NIH bulletin board on AMA's MINET system, and plans for the June 9 Symposium on Physical Fitness and Sports Medicine.
- Dr. Schoolman described in some detail the recent study of NLM's exhibiting practices and outlined how the Library would be placing greater emphasis on exhibiting in the future.
- The Subcommittee viewed the first two brief videotape "vignettes" to be aired on the cable television network "Discovery."
- There was considerable discussion by the Subcommittee members in how NLM should approach planning its education/outreach activities. It was the consensus that:
  1. NLM should not try to do too much at one time--that we need to articulate our purpose and delineate our audiences clearly, and that there should be special messages for special audiences;
  2. NLM should begin its efforts with students--medical, nursing, dental, etc.--these groups are more apt to "change their behavior" and become users of GRATEFUL MED, for example. NLM should arrange for focus groups of students to see how best to approach this audience.

3. An especially important audience is that of medical students, physicians, and other health professionals. There are about 400 residency programs in the U.S.
4. Specifically as to nurses, it was suggested that the NLM outreach effort be limited initially to those in masters' programs.
5. As a start, NLM needs to develop baseline data about these groups and their present knowledge/use of NLM services. At the same time they are surveyed, they can be given information about these services.



B O A R D O F R E G E N T S

EXTRAMURAL PROGRAMS SUBCOMMITTEE MEETING

May 16, 1988

2:00 to 3:30 p.m.

A T T E N D E E S

Subcommittee Members Present:

Dr. Grant V. Rodkey, Chairman  
Ms. Nina W. Matheson  
Dr. Eugene A. Stead, Jr.

Unable to Attend:

Dr. Ann K. Randall  
Dr. Jay P. Sanford

NLM Staff Present:

Mr. Arthur J. Broering, Acting Associate Director, EP  
Mrs. Ruth Bortz, Grants Management Specialist, EP  
Dr. Jeanne L. Brand, Chief, International Programs Branch, EP  
Mr. Peter Clepper, Program Officer, EP  
Mrs. Karin K. Colton, Committee Management Assistant, EP  
Dr. Roger W. Dahlen, Chief, Biomedical Information Support Branch, EP  
Ms. Rose Marie Holston, Program Analyst, EP  
Mrs. Frances E. Johnson, Program Officer, EP  
Dr. M. Kathleen Nichols, Grant Management Specialist, EP

APPLICATIONS APPROVED BY COUNCIL  
(ARRANGED NUMERICALLY BY PROGRAM)  
PROG. CLASS:

COUNCIL DATE: MAY 1988

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
2 R01 LM03120-09A1	EXPERT COMPUTERIZED BIBLIOGRAPHIC SEARCH ASSISTANT	09A1 97,072 10 103,375 11 107,718
2 R01 LM04431-04	NEURO-IMAGING EXPERT SYSTEM	04 185,679 05 173,272 06 203,709
2 R01 LM04485-04	DIAGNOSTICITY AND HEURISTICS IN MEDICAL DECISION MAKING	04 120,886 05 128,056 06 136,802 07 143,164 08 151,762
1 R01 LM04619-01A1	CHINESE HERBS, THEIR PHARMACOLOGICAL & THERAPEUTIC USES	01A1 17,780 02 18,435
1 R01 LM04839-01A1	COORDINATING MULTIPLE EXPERT SYSTEMS	01A1 172,570 02 182,827 03 197,914
1 R01 LM04901-01	PHILIPPE PINEL: CLINICIAN OF THE FRENCH REVOLUTION	01 22,758 02 25,000 03 25,000
1 R01 LM04902-01	ORIGINS OF THE KAISER PERMANENTE MEDICAL CARE PROGRAM	01 24,500
1 R01 LM04903-01	GIVING THE GIFT OF LIFE TO UNNAMED STRANGERS	01 24,727

APPLICATIONS APPROVED BY COUNCIL  
 (ARRANGED NUMERICALLY BY PROGRAM)  
 PROG. CLASS: COUNCIL DATE: MAY 1988

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE	APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
	1 R01 LM04906-01	A HISTORY OF RENAL MEDICINE IN AMERICA	01 10,030
	1 R01 LM04908-01	INTERPRETIVE AND METHODOLOGIC IMPLICATIONS OF PUBLICATIO	01 71,264 02 82,843 03 87,814
	1 R01 LM04922-01	EXPERT SYSTEM & KNOWLEDGE BASE FOR ELECTROMYOGRAPHY	01 253,193 02 228,950 03 228,752
	1 R01 LM04926-01	DUALS SECONDARY REVIEW: GM EXPERT SYSTEM COMPUTER TUTORIAL FOR MOLECULAR GENETICS A	01 33,471 02 34,302
	1 R01 LM04932-01	A KNOWLEDGE BASED RADIOLOGY UNFORMATION SYSTEM	01 111,613 02 108,419 03 113,465
	1 R01 LM04936-01	DUALS SECONDARY REVIEW: GM COMPUTER-AIDED INTEGRATION OF BIOLOGICAL INFORMATION	01 162,012 02 187,188 03 191,367 04 201,366 05 212,603
	1 R01 LM04940-01	SEQUENCE ANALYSIS USING MULTIPLE PARALLEL MODELS	01 98,025 02 75,388 03 56,851
	1 R01 LM04944-01	COMPUTER TOOLS FOR SEQUENCE ANALYSIS AND DATABASE ACCESS	01 234,930 02 104,937 03 109,243

APPLICATIONS APPROVED BY COUNCIL  
 (ARRANGED NUMERICALLY BY PROGRAM)  
 PROG CLASS:

COUNCIL DATE: MAY 1988

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
1 R01 LM04945-01	COMBINED PHYSICAL PROPERTIES FOR PROFILE ANALYSIS	01 88,592 02 91,661 03 97,540
1 R01 LM04952-01	BIOTECHNOLOGY COMPUTER RESEARCH AT YALE	01 167,182 02 179,185 03 192,025
1 R01 LM04954-01	KNOWLEDGE-BASED EFFECTS ON PROTEIN STRUCTURE PREDICTION	01 122,573 02 70,076 03 67,678
1 R01 LM04955-01	DUALS SECONDARY REVIEW: GM A COMPUTER LABORATORY FOR GENE SEQUENCE ANALYSIS	01 134,165 02 124,457 03 100,412
1 R01 LM04957-01	SYMBOLIC SIMULATION OF DNA METABOLISM	01 100,270 02 66,451 03 69,109
1 R01 LM04958-01	CREATION & ANALYSIS OF ARCHIVAL PROTEIN NMR DATABASE	01 169,873 02 143,189 03 148,916 04 154,873 05 161,068
1 R01 LM04960-01	EFFICIENT SOFTWARE FOR THE ANALYSIS OF BIOSEQUENCES	01 99,514 02 93,617 03 97,927
1 R01 LM04961-01	PARALLEL MACROMOLECULAR STRUCTURE RETRIEVAL ALGORITHMS	01 89,280

APPLICATIONS APPROVED BY COUNCIL  
(ARRANGED NUMERICALLY BY PROGRAM)  
PROG. CLASS:

COUNCIL DATE: MAY 1988

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
1 R01 LM04963-01	DUALS SECONDARY REVIEW: GM AN IMPROVED MODEL FOR PREDICTING TERTIARY STRUCTURE OF D	01 64,996 02 67,268 03 69,958
1 R01 LM04964-01	DUALS SECONDARY REVIEW: GM AN EXPERT SYSTEM TO PREDICT & VISUALIZE PROTEIN STRUCTUR	01 98,885 02 102,310 03 105,872
1 R01 LM04965-01	DUALS SECONDARY REVIEW: GM COMPUTER REPRESENTATION & REDUCTION OF CHROMOSOME MAPPIN	01 90,110 02 73,558
1 R01 LM04967-01	BARRIER WORD METHOD FOR MOLECULAR BIOLOGY SEARCHES	01 72,347 02 76,976 03 81,900
1 R01 LM04968-01	COMPUTER SYSTEM FOR THE PROTEIN IDENTIFICATION RESOURCE	01 132,167 02 138,450 03 145,035 04 151,935 05 159,166
1 R01 LM04969-01	DUALS SECONDARY REVIEW: GM COMPARISON OF PROTEIN SEQUENCES & STRUCTURES	01 75,956 02 61,838 03 64,212
1 R01 LM04970-01	A SEMANTIC NETWORK FOR BIOMEDICAL INFORMATION RESOURCES	01 144,070 02 235,777 03 157,120 04 174,609 05 170,895
1 R01 LM04971-01	FUNCTIONAL MOTIFS & ERRORS IN BIOLOGICAL SEQUENCES	01 101,082 02 81,309 03 84,561

APPLICATIONS APPROVED BY COUNCIL  
 (ARRANGED NUMERICALLY BY PROGRAM)  
 PROG. CLASS: COUNCIL DATE: MAY 1988  
 INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
1 R01 LM04972-01	DUALS SECONDARY REVIEW: GM	01 79,780
		02 113,416
	SYNTACTIC PATTERN ANALYSIS OF NUCLEOTIDE SEQUENCES	03 117,693
1 R01 LM04973-01	DEVELOPMENT OF A PATTERN-INDEXED DATABASE OF PROTEIN FUN	01 100,528
		02 129,621
1 R01 LM04975-01	DUALS SECONDARY REVIEW: GM	01 80,180
		02 86,633
	PROTEIN SEQUENCE/STRUCTURE CORRELATIONS	03 92,879
		04 99,604
		05 106,846
1 R01 LM04978-01	DISTRIBUTED DATABASES WITH TEXT UNDERSTANDING SUPPORT	01 187,396
		02 145,363
		03 150,633

APPLICATIONS APPROVED BY COUNCIL  
 (ARRANGED NUMERICALLY BY PROGRAM)  
 INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE  
 COUNCIL DATE: MAY 1988

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
1 G08 LM04905-01	A VIRTUAL NOTEBOOK FOR BIOMEDICAL WORK GROUPS	01 496,408 02 688,559 03 345,598
1 G08 LM04912-01	IAMS PLANNING AT DARTMOUTH-HITCHCOCK MEDICAL CENTER	01 88,996
1 G08 LM04915-01	ACOG INTEGRATED ACADEMIC INFO. MANAGEMENT SYS: MODEL PHA	01 375,659 02 355,525 03 374,785
1 G08 LM04934-01	IAMS PLANNING	01 100,000 02 100,000

APPLICATIONS APPROVED BY COUNCIL  
 (ARRANGED NUMERICALLY BY PROGRAM)  
 PROG. CLASS:

COUNCIL DATE: MAY 1988

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
1 R29 LM04715-01A1	COMPUTER SIMULATION IN CLINICAL MEDICINE	01A1 64,879 02 58,947 03 62,660 04 64,066 05 69,465
1 R29 LM04913-01	HOW PHYSICIANS ACCESS & EVALUATE BIOMEDICAL KNOWLEDGE	01 60,120 02 69,585 03 71,476 04 71,838 05 73,191
1 R29 LM04914-01	DUALS SECONDARY REVIEW: HL DECISION ANALYSIS IN VENOUS THROMBOEMBOLISM	01 75,270 02 76,205 03 76,171 04 59,144 05 63,179
1 R29 LM04919-01	JOINT HUMAN-COMPUTER COGNITION SYSTEM FOR PRENATAL CARE	01 99,499 02 73,055 03 65,591 04 62,546 05 49,305



APPLICATIONS APPROVED BY COUNCIL - DUAL REVIEW  
(ARRANGED NUMERICALLY)

COUNCIL DATE: MAY 1988

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
2 P41 RR01821-06	DUALS SECONDARY REVIEW: LM	06 1,135,153
	PROTEIN IDENTIFICATION RESOURCE	07 795,760
		08 836,338
		09 879,159

APPLICATIONS APPROVED BY COUNCIL - DUAL REVIEW  
(ARRANGED NUMERICALLY)

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

COUNCIL DATE: MAY 1988

APPLICATION NUMBER PROJECT TITLE

1 R01 HS06054-01 DUALS SECONDARY REVIEW: LM

MEDICAL TECHNOLOGY DECISIONS IN HOSPITALS; CHANGES SINCE

AMOUNTS  
RECOMMENDED

01  
02

81,592  
71,733

APPLICATIONS APPROVED BY COUNCIL - DUAL REVIEW  
(ARRANGED NUMERICALLY)

COUNCIL DATE: MAY 1988

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE  
PROG. CLASS:

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
1 R29 HL38333-01A2	DUALS SECONDARY REVIEW: LM	01A2 78,274
	MULTIMODALITY CARDIAC IMAGE UNDERSTANDING	02 70,961
		03 71,538
		04 72,372
		05 56,839

APPLICATIONS APPROVED BY COUNCIL  
(ARRANGED NUMERICALLY BY PROGRAM)  
PROG. CLASS:

COUNCIL DATE: MAY 1988

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
1 G07 LM06714-01A1	MEDICAL LIBRARY RESOURCE IMPROVEMENT GRANT	01A1 4,000
1 G07 LM04924-01	MEDICAL LIBRARY RESOURCE IMPROVEMENT GRANT	01 52,047
1 G07 LM04931-01	MEDICAL LIBRARY RESOURCE IMPROVEMENT GRANT	01 44,000

DEPARTMENT OF HEALTH AND HUMAN SERVICES  
NATIONAL INSTITUTES OF HEALTH  
NATIONAL LIBRARY OF MEDICINE  
Bethesda, Maryland

A G E N D A

89th Meeting of the

BOARD OF REGENTS

9:00 a.m., October 6-7, 1988

Board Room  
Mezzanine of  
National Library of Medicine

MEETING OPEN: All day on October 6 and from 9:00 a.m. to 10:30 a.m. on October 7.  
MEETING CLOSED: From 10:30 a.m. to adjournment on October 7 for the review of grant applications.

- I. CALL TO ORDER AND INTRODUCTORY REMARKS Dr. Edward N. Brandt, Jr.
- II. REMARKS BY THE SURGEON GENERAL, PHS Dr. C. Everett Koop
- III. REMARKS BY THE DEPUTY DIRECTOR, NIH Dr. William F. Raub
- IV. CONSIDERATION OF MAY MINUTES TAB I Dr. Edward N. Brandt, Jr.  
(Agenda Book)
- V. FUTURE MEETING DATES

Winter Meeting: January 26-27, 1989 (Th-F)--CONFIRMED

Spring Meeting: June 1-2, 1989 (Th-F)--CONFIRMED

Fall Meeting: Sept. 28-29 OR Oct. 5-6, 1989 (Th-F)--PROPOSED

PLEASE NOTE Potential NIAID Council Fall Meeting, 9/28-29/89,  
Conflicts with Sept./ Bethesda, MD  
Oct. 1989 Dates: Institute of Medicine Annual Meeting,  
10/16-17/89, Washington, DC  
American College of Surgeons Annual  
Meeting, 10/15-20/89, Atlanta, GA  
National Academy of Engineering Annual  
Meeting, 10/2-5/89, Washington, DC  
MEDINFO Triennial Meeting, 10/16-20/89,  
Beijing, China  
American Public Health Assoc. Annual  
Meeting, 10/22-26/89, Chicago, IL  
Assoc. of American Medical Colleges  
Annual Meeting, 10/28-11/2/89, Wash., DC

Potential Conflicts with Sept./Oct. 1989 Dates continued: American Society for Info. Science Annual Meeting, 10/29-11/2/89, San Diego  
 Assoc. of Research Libraries, Semiannual Meeting, 10/17-20/89, Washington, DC  
 (Please see calendars in agenda folder for NLM committee meetings.)

COFFEE BREAK

- VI. REMARKS BY THE ASSISTANT SECRETARY FOR HEALTH Dr. Robert E. Windom
  
- VII. REMARKS BY THE DIRECTOR, NLM TAB II Dr. Donald A. B. Lindberg  
 Discussion Board Members
  
- VIII. LITERATURE SELECTION TECHNICAL REVIEW COMMITTEE MEETING TAB III Mrs. Lois Ann Colaianni  
 Dr. Albert E. Gunn and  
 Dr. Lois E. DeBakey,  
 Discussants  
 Discussion Board Members
  
- IX. CD-ROM CONFERENCE TAB IV Dr. Elliot Siegel  
 Discussion Board Members
  
- LUNCHEON CATERED IN CONFERENCE ROOM "B" 12:15-1:00
  
- X. FOLLOWUP TO LONG-RANGE PLAN TAB V
  - A. Overview Tab A Dr. Elliot Siegel
  - B. Outreach Activities Tab B Mr. Robert Mehnert  
 Mr. H. Robert Cathcart and  
 Dr. Lois E. DeBakey,  
 Discussants
  - C. Training of Librarians Tab C Mrs. Lois Ann Colaianni  
 Ms. Nina W. Matheson,  
 Discussant
  - D. Image Library Tab D Dr. Daniel R. Masys  
 Dr. Edward A. Feigenbaum,  
 Discussant
 Discussion Board Members
  
- COFFEE BREAK

- XI. DENTAL INFORMATICS TAB VI Dr. James Craig  
Dr. John Salley  
Dr. John Zimmerman  
  
Discussion Board Members
- XII. NIH DIRECTOR'S ADVISORY COMMITTEE MEETING TAB VII Dr. Edward N. Brandt, Jr.
- XIII. INTERNATIONAL MEDLARS POLICY TAB VIII Dr. Richard K. Hsieh  
ADVISORY GROUP MEETING  
  
Discussion Board Members

R E C E S S \* \* \* \* \*

DINNER . . . . . Bethesda Marriott Hotel  
 Cocktails . . . . . 6:30 p.m. 5151 Pooks Hill Road  
 Dinner . . . . . 7:30 p.m. Bethesda, Maryland

SPEAKER: Dr. Donald Henderson  
 Dean, Johns Hopkins School of  
 Hygiene and Public Health

TITLE: "DEATH OF A DISEASE"

R E C O N V E N E: Friday, October 7, 9:00 a.m., Board Room

\* \* \* \* \*

- XIV. REPORT OF THE ACTING ASSOCIATE TAB IX Mr. Arthur J. Broering  
DIRECTOR FOR EXTRAMURAL PROGRAMS EP Subcommittee,  
Discussants  
  
A. Budget and Funding Plans
- XV. MODIFICATION OF THE RESOURCE TAB X Mr. Arthur J. Broering  
GRANTS PROGRAM Dr. Ann K. Randall,  
Discussant  
  
Discussion Board Members

COFFEE BREAK

-----  
 MEETING CLOSED FOR THE REVIEW OF GRANT APPLICATIONS, 10:30 A.M.  
 -----

		(Workbook)	
XVI.	SPECIAL APPLICATIONS	<u>TAB I</u>	
	1. Resource Project	<u>Tab 1</u>	Dr. Roger W. Dahlen
	2. Resource Project	<u>Tab 2</u>	
	3. IAIMS	<u>Tab 3</u>	
	4. Publication	<u>Tab 4</u>	Dr. Jeanne L. Brand
XVII.	SUMMARY STATEMENTS AND SPECIALS OVER \$100,000		
	Resource Projects	<u>TAB II</u>	Dr. Roger W. Dahlen
	A. Over \$100,000	<u>Tab A</u>	
	B. Other	<u>Tab B</u>	
	Research	<u>TAB III</u>	
	A. Over \$100,000	<u>Tab A</u>	
	B. Other	<u>Tab B</u>	
	FIRST Awards	<u>TAB IV</u>	
	Research Career Development	<u>TAB V</u>	
	Improvement	<u>TAB VI</u>	
	Publication	<u>TAB VII</u>	Dr. Jeanne L. Brand
	Biotechnology	<u>TAB VIII</u>	Dr. Roger W. Dahlen
	IAIMS	<u>TAB IX</u>	
XVIII.	IAIMS Over \$100,000	(Separate Workbook)	Dr. Roger W. Dahlen
XIX.	ADJOURNMENT		Dr. Edward N. Brandt, Jr.



D E P A R T M E N T O F H E A L T H A N D H U M A N S E R V I C E S

NATIONAL INSTITUTES OF HEALTH  
NATIONAL LIBRARY OF MEDICINE

BOARD OF REGENTS  
MINUTES OF THE 89TH MEETING  
OCTOBER 6-7, 1988

BOARD ROOM  
NATIONAL LIBRARY OF MEDICINE  
BETHESDA, MARYLAND

DEPARTMENT OF HEALTH AND HUMAN SERVICES  
PUBLIC HEALTH SERVICE

THE BOARD OF REGENTS OF THE NATIONAL LIBRARY OF MEDICINE

Minutes of Meeting 1/ 2/  
October 6-7, 1988

The Board of Regents of the National Library of Medicine was convened for its eighty-ninth meeting at 9:00 a.m. on Thursday, October 6, 1988, in the Board Room of the National Library of Medicine, Bethesda, Maryland. Dr. Edward N. Brandt, Jr., Chairman of the Board of Regents and President, University of Maryland - Baltimore, presided. In accordance with P.L. 92-463 and the Determination of the Director, NIH, as announced in the Federal Register on August 30, 1988, the meeting was open to the public from 9:00 a.m. to 4:50 p.m. on October 6 and from 9:00 to 10:15 a.m. on October 7. The meeting was closed from 10:15 to adjournment at 10:45 a.m. on October 7 for the review, discussion, and evaluation of grant applications. A Board roster is enclosed under Attachment A.

Board members present were:

Dr. Edward N. Brandt, Jr.  
Dr. Steven C. Beering  
Dr. James H. Billington (October 6)  
Dr. H. Robert Cathcart  
Dr. Edward A. Feigenbaum  
Mr. Joseph H. Howard  
Dr. C. Everett Koop (October 6)  
Ms. Nina W. Matheson  
Dr. Ann K. Randall  
Dr. Jay P. Sanford

Alternates to ex officio members present were:

Dr. Faye G. Abdellah, representing Dr. C. Everett Koop.  
Dr. Charles N. Brownstein, representing Dr. David T. Kingsbury. (10/6)  
Brig. Gen. Rufus M. DeHart, Jr., representing Lt. Gen. Murphy A. Chesney.  
Col. Howard E. Fauver, representing Lt. Gen. Quinn H. Becker.  
Capt. Vernon D. Schinski, representing Vice Admiral James A. Zimble.  
Ms. Karen Renninger, representing Dr. John Gronvall.  
Ms. Charlene Woody, representing Dr. James H. Billington (10/6 p.m.).

Unable to Attend:

Dr. Don E. Detmer

---

1/ For the record, it is noted that members absent themselves from the meeting when the Board is discussing applications (a) from their respective institutions or (b) in which a conflict of interest might occur. Only when an application is under individual discussion will the Board member absent himself. This procedure does not apply to "en bloc" actions.

2/ The Board of Regents, when considering the extramural programs of NLM, also constitutes and serves as the National Libraries Assistance Advisory Board.

National Library of Medicine staff members attending this meeting included:

Dr. Donald A. B. Lindberg, Director  
Mr. Kent A. Smith, Deputy Director  
Dr. Harold M. Schoolman, Deputy Director for Research and Education  
Mr. John Anderson, Director, Information Systems, OD  
Dr. Dennis Benson, Chief, National Center for Biotechnology Information Branch, LHCNBC  
Dr. Jeanne Brand, Chief, International Programs Branch, EP  
Mr. Arthur J. Broering, Acting Associate Director for Extramural Programs  
Mr. Kenneth Carney, Executive Officer, OD  
Mrs. Lois Ann Colaianni, Associate Director for Library Operations  
Dr. Roger W. Dahlen, Chief, Biomedical Information Support Branch, EP  
Mr. Earl Henderson, Deputy Director, LHCNBC  
Dr. Richard Hsieh, Director for International Programs, OD  
Ms. Betsy Humphreys, Deputy Associate Director, LO  
Mr. Charles R. Kalina, Special Projects Officer, OD  
Dr. Lawrence C. Kingsland, III, Chief, Computer Science Branch, LHCNBC  
Dr. Henry M. Kissman, Associate Director for Specialized Information Services  
Mr. Sheldon Kotzin, Chief, Bibliographic Services Division, LO  
Dr. Daniel R. Masys, Director, Lister Hill National Center for Biomedical Communications  
Mr. Robert B. Mehnert, Chief, Office of Inquiries and Publications Management, OD  
Mr. Arthur Robinson, EEO Officer  
Dr. Elliot R. Siegel, Assistant Director for Planning and Evaluation  
Ms. Susan Buyer Slater, Deputy Assistant Director for Planning and Evaluation  
Ms. Fredette West, Chief, Office of Financial Management, OD  
Mr. Richard T. West, Chief, Office of Program Planning and Evaluation, EP

Others present included:

Dr. Robert E. Windom, Assistant Secretary for Health  
Dr. William F. Raub, Deputy Director, NIH  
Dr. Lois E. DeBakey, Professor of Scientific Communications, Baylor College of Medicine, Houston, Consultant  
Dr. Albert E. Gunn, Associate Dean for Admissions, The University of Texas Medical School, Houston, Consultant  
Dr. Louis Abbey, Director, Division of Dental Informatics, School of Dentistry, Virginia Commonwealth University  
Dr. Richard Adelson, Assistant Director, Veterans Administration  
Dr. Marion Ball, Associate Vice President, Information Resources Management, University of Maryland  
Dr. James F. Craig, Director of Dental Informatics, Baltimore College of Dental Surgery, University of Maryland  
Ms. Carolyn F. Gray, Assistant Executive Director of Educational Affairs, American Association of Dental Schools, D.C.  
Mr. Richard D. Mumma, Jr., Executive Director, American Association of Dental Schools, D.C.  
Dr. Errol Reese, Dean, Baltimore College of Dental Surgery, University of Maryland  
Dr. John J. Salley, Director of Oral Pathology, School of Dentistry, Virginia Commonwealth University, Richmond, VA  
Dr. Eric S. Solomon, Assistant Executive Director, AADSAS and Resources Studies, American Association of Dental Schools, D.C.  
Dr. John Zimmerman, Director of Academic Computing and Health Informatics, University of Maryland

## I. OPENING REMARKS

Dr. Edward N. Brandt, Jr., Chairman, welcomed the Regents to the 89th meeting of the Board of Regents. He noted the presence of Dr. James H. Billington, the Librarian of Congress; alternate member Captain Vernon D. Schinski, U.S. Navy; former Regent and NLM consultant Dr. Lois DeBakey; former Regent Dr. Albert E. Gunn; Drs. James Craig and John Zimmerman of the University of Maryland; and Drs. John Salley and Louis Abbey of Virginia Commonwealth University.

## II. REMARKS OF THE SURGEON GENERAL

Dr. C. Everett Koop reported briefly on the revitalization of the PHS Commissioned Corps, an effort to reinstitute its original functions and traditions. There is now a memorandum of understanding between PHS and the Department of Defense with specifics about the role of the Commissioned Corps in a national emergency. In January 1989, the Commissioned Corps will celebrate its 100th anniversary. An updated history of the PHS will be published. NLM's History of Medicine Division is involved in planning for the centennial. A Surgeon General's workshop on health promotion on aging has just been concluded; there has been a gratifying response by industry, national organizations, and individuals to suggestions that came out of the workshop. Dr. Koop concluded his remarks by announcing an upcoming Surgeon General's workshop on drunk driving and by mentioning the current controversy over the "smokeless cigarette."

## III. CONSIDERATION OF MINUTES OF PREVIOUS MEETING

The Regents approved the minutes of the May 17-18, 1988, meeting without change.

## IV. DATES OF FUTURE MEETINGS

The Board will meet next on January 26-27, 1989. The spring meeting was confirmed for June 1-2, 1989. The meeting for next fall was tentatively set for October 5-6, 1989.

## V. REPORT OF THE NIH DEPUTY DIRECTOR

Dr. William F. Raub reported on the reasons for the recently proposed merger of the functions of the NIH Divisions of Research Resources (DRR) and Research Services (DRS). One major reason for the proposed action is the growing concern, "bordering on obsession," with the issue of staffing--Full-Time Equivalents (FTEs). NIH aims to continue the important functions of the two programs while positioning itself to deal with expected continuing stringent staff limitations. Dr. Raub noted that members of the DRR advisory council had difficulty with the

notion that the Federal Government regulates the size of staff as a completely separate variable from the amount of money or space allotted to an agency. He described how NIH staff limitations and ceilings are derived. In 1984, he said, NIH had an FTE allocation of 13,661 and a budget of about \$4.5 billion; for the present fiscal year (1989) the budget exceeds \$7 billion (a growth of 59 percent), while the FTE count is 12,902 (a decrement of 759 FTEs, or 5.6 percent). Factoring out the growth in dollars and FTEs focused on the AIDS effort, one sees a decrement of 8.7 percent in the "non-AIDS" FTEs. All NIH divisions and institutes have shared in the reduction, much of it borne by the intramural program.

Following Dr. Raub's report, Dr. Brandt commented that NLM's newly legislated responsibilities in the area of biotechnology will unavoidably require additional staff to carry them out. He hoped that the NIH Director's Office would put this high on the list of priorities. He also expressed concern about an amendment, "Prevention of Scientific Misconduct," to the NIH reauthorization bill (S.2222) that would deal with the problem of false information resulting from biomedical research. The amendment has not had public hearings and has potentially grave consequences for medical research. Dr. Feigenbaum commented that in the universities it is expected that young scientists flow through a sort of pipeline, remaining from two to five years, and are not considered permanent employees; can the Administration be persuaded not to count such people at NIH as non-FTEs? Although some exceptions to civil service rules have been gained by NIH, Dr. Raub replied, attempts to have a university "flow-through" model have not been successful.

#### VI. REPORT OF THE ASSISTANT SECRETARY FOR HEALTH

Dr. Robert E. Windom said that AIDS remains highest on the Department's health agenda; from \$5 million in 1982, expenditures have risen to \$1.3 billion in 1989. He discussed the current argument of whether the FDA is acting quickly enough on the approval of new drugs for AIDS. He also commented briefly about the hearings on fraud and misconduct in science. There need to be more formal procedures in the universities to guard against fraud--at present only 20 percent of institutions receiving funds have such procedures in place. Other controversies currently facing the Department concern animal research, the use of fetal tissue, in vitro fertilization, insertion of animal DNA into humans, the exodus of senior government scientists because of inadequate pay scales, the propriety of the government accepting private funding to establish an institute of virology at NIH, and the role of government in influencing how a drug company prices extremely expensive drugs such as AZT. The Department is seeking advice on these difficult questions.

#### VII. REPORT OF THE NLM DIRECTOR

Dr. Donald A. B. Lindberg said that for the first time in many years the NLM enters a fiscal year with a budget in place. He presented a

slide detailing the FY 1989 budget and described how the \$73.7 million would be apportioned among NLM programs. There is a worsening problem with the NIH's (and thus the Library's) FTE staffing situation. Dr. Lindberg announced several new appointments: Dr. Dennis Benson as Chief of the National Center for Biotechnology Information Branch (in the Lister Hill Center), Fredette West as NLM Budget Officer, and Peri Schuyler as Head of the Medical Subject Headings Section. There were several legislative topics dealt with briefly by the Director: the reauthorization of the Medical Library Assistance Act (outcome uncertain), the establishment of the National Center for Biotechnology Information (for which funds had previously been appropriated), and the Congressional concern with the publication of "false manuscripts." As regards the last, one current bill would require the NLM Director to develop guidelines for journals to protect against publication of manuscripts reflecting scientific misconduct. Dr. Wyngaarden testified at a recent hearing held by Rep. Weiss (NY) on the subject; NIH takes the matter of fraud and misconduct very seriously, believing in general that such matters should be handled close to the laboratories and their parent institutions.

Dr. Lindberg briefly noted a number of events at NLM since the last meeting of the Board. Last week a press conference was held in the Lister Hill Center Auditorium to introduce Dr. James Watson as head of the NIH Human Genome Project. The Physical Fitness and Sports Medicine Symposium held in June at the Library was quite successful. The Library announced a new online AIDS information service--AIDSLINE--in August. This, and a new periodical AIDS Bibliography, were both produced by the NLM without additional staff or funds. Future enhancements to these, however, would require increased resources. Dr. Lindberg reported that the Integrated Academic Information Management Systems (IAIMS) program has successfully progressed through planning and prototype development phases; additional funding is required to move fully into the third phase--implementation. Yet by carefully prioritizing our IAIMS resources, we plan to give top priority to carrying at least two or three programs through the implementation phase. NLM and the Environmental Protection Agency have announced a joint project to develop and maintain a publicly available Toxic Chemical Release Inventory (TRI) that would be mounted on NLM's TOXNET system. The TRI would give scientists access to geographical data on chemical releases that can potentially be correlated with demographic, meteorological, and hydrographic patterns. The Director reported briefly on the Florida demonstration project to simplify Federal Government post-award procedures for grants; OMB and a Federal interagency committee will follow up on the preliminary findings of the project. Finally, Dr. Lindberg described the Library's plans to update the Long-Range Plan in three areas--outreach, the training of medical librarians, and medical image libraries. For the first of these--outreach--an outside advisory panel under the purview of the Board's Planning Subcommittee, has been assembled that will meet at the Library in November. The Board Chairman had given his approval to the naming of this panel. All three subjects will be addressed later at this meeting.

#### VIII. LITERATURE SELECTION TECHNICAL REVIEW COMMITTEE MEETING

Mrs. Lois Ann Colaianni, NLM Associate Director for Library Operations, reported on the first official meeting in July 1988 of the new Literature Selection Technical Review Committee (LSTRC). The Committee

consists of 12 members of distinguished scientists, practitioners, editors, and librarians, and is chaired by Dr. Albert Gunn (former Regent). The Committee reviewed 110 journals for possible indexing in Index Medicus and MEDLARS. Mrs. Colaianni briefly described the staff processing of journals, both before and after the journals are reviewed by the Committee. She noted the various ways new journals come to our attention. About 110-120 titles are presented to the Committee for consideration at each of their three meetings annually. Each member is assigned as a "primary" reviewer for about 10 titles and as a "secondary" reviewer for 10 more titles; assignments are made taking into account the members' subject and language expertise. Mrs. Colaianni described the bibliographic and other background information about each journal given to the members along with the issues for review. At the meeting, primary and secondary reviewers comment on each title assigned to them. Each reviewer makes a judgment about whether a journal should be indexed and, if so, assigns a priority of 1 (low) to 5 (high). These individual judgments are melded into a decision by the Committee as a whole as to whether to index a journal and what the priority should be. At the last meeting, it was recommended that 40 of the 110 titles not be indexed; of those titles recommended for indexing, one had a priority of one, 18 a priority of two, 21 a priority of three, 22 a priority of four, and four titles a priority of five. A decision on four was deferred for additional information. A sheet is prepared for each title summarizing the recommendation and members' comments. These sheets are the only permanent record of the Committee's deliberations.

The Library has been working with professional societies to review the adequacy of coverage of various areas of the scientific literature. Last year radiology, family medicine, and geriatrics were looked at. The LSTRC heard reports of the family medicine initiative at the July meeting and, as a result, six titles in this subject were identified and reviewed; two of them were recommended with a high enough score to be selected for indexing. This year NLM and the Committee will be taking a special look at journals in the field of dermatology, epidemiology and AIDS, biotechnology, and complete the review of radiology. Reports on the geriatrics literature are expected in January 1989.

Titles that do not receive a high enough priority to be selected for indexing are sometimes referred to creators of other databases on the NLM system (e.g., CANCERLIT and HISTLINE). Titles that receive a score of four or five are sent to the NLM Director for his concurrence. Editors of journals that are selected are notified of the action; individuals who have recommended that journals be indexed are notified of the Committee's recommendation. An editor who asks may receive a copy of the summary sheet; occasionally an editor may request a debriefing in person.

Following Mrs. Colaianni's presentation, Dr. Gunn, Chairman of LSTRC, briefly described the code of ethics that the Committee has adopted. He listed a number of problems that the Committee will be facing. How does one define "biomedical literature"? How does the Committee deal with the increasing specialization of the biomedical sciences? How

many titles in a field are sufficient? Should a journal be required to have a stated policy on how it deals with scientific fraud? What constitutes peer review? Should it be required in every case? What should be the balance between U.S. and foreign journals? How soon should a rejected journal be allowed to reapply for inclusion? He praised the quality of the NLM staff work in pre- and post-review processing. Dr. Gunn concluded by saying that as the LSTRC gains experience it will be able to formalize its review procedures.

Dr. Lois DeBakey, a consultant to the Library who is also a member of the LSTRC, commented that since the Committee's judgments will always be qualitative, it will be difficult to tie down objective criteria. Nevertheless, it will be helpful to establish general guidelines to ensure that the LSTRC is fair and reasonable in its decisions. She said that when a highly specialized, peripherally related journal is already indexed in another accessible database, it seems reasonable to direct users to that database rather than to duplicate coverage in NLM's. One way to discourage the publication of "insignificant, redundant, gratuitous, abstruse, and scientifically questionable journals" is not to index them. It does not serve the user to retrieve so many references of marginal quality. NLM's indexing procedures should serve as a quality filter.

Following these presentations, Dr. Brandt commented that the work of the Committee was extremely important to the Library and he complimented the Director in having appointed such an outstanding group. He noted that the fact that they review some 350 journals a year is a commentary on the continued amazing growth of the literature. In response to a question from Mr. Cathcart, Dr. Lindberg said that he accepted all of the LSTRC's recommendations from their first meeting. During a general discussion of the problem of the proliferating biomedical literature, Dr. Billington noted that the Library of Congress receives 31,000 items a day, many of which are thrown out. He worries that some of what is being discarded may be important.

#### IX. CD-ROM CONFERENCE

Dr. Elliot Siegel, NLM Assistant Director for Planning and Evaluation, reported on the September 23 forum held at NLM to evaluate seven commercially produced CD-ROM products that contain the Library's MEDLINE database. Dr. Siegel recounted briefly the history of NLM's collaboration with the private sector to produce MEDLINE on CD-ROM. As part of the experimental agreement between NLM and the vendors, the seven products were each evaluated at three sites--21 sites in all around the United States. During a coordinated test period of two-three months, about 4,000 students and faculty used the various systems. Some 250 librarians and others attended the September 23 forum to hear about the experiences at those institutions. The attendees not only heard about the use of the systems in the test sites, but had ample opportunity to use the systems themselves during the forum. Although NLM plans to publish the papers presented at the forum, Dr. Siegel gave the Regents a glimpse of the preliminary



findings: (1) CD-ROM attracts new users to MEDLINE; (2) one-third of the users were students; (3) CD-ROM is preferred over Index Medicus and searches done by an intermediary (but people who had done online MEDLINE searching before continued to prefer that); (4) users indicated they would be willing to pay \$1 to \$5 for a search; (5) usage of CD-ROM did not reduce the volume of online searching at the test sites; (6) librarians at the institutions worried about security for the equipment, the staff time involved, and that users might not be getting the best searches possible; (7) the systems received limited use in clinical settings; and (8) the vendors themselves foresee multi-user access--either through local area networks or through hardware/software that accommodates several disks. To sum up, Dr. Siegel said the Library learned much from the experience and that this example of successful collaboration between NLM, private companies, and the medical library community is a form of effective "outreach."

#### X. FOLLOWUP TO LONG-RANGE PLAN

Before hearing formal presentations on this topic, the Chairman briefly recounted the planning process the Board and the Library undertook several years ago. It is now desirable to update the Plan in several areas, Dr. Brandt said, the area to receive attention first being outreach activities. The Regional Medical Libraries will be very important to outreach and their contracts will soon be renegotiated. The Chairman, acting on behalf of the Board, approved the NLM Director's proposal to appoint an Outreach Planning Panel. The Panel, chaired by Dr. Michael DeBakey, will meet at NLM next month. Additional panels will be appointed to deal with other aspects of the Long-Range Plan that need updating. Dr. Brandt suggested and, hearing no comment to the contrary, formally stated that the NLM Director was free to appoint future panels. To assist the Board in all this, Dr. Brandt then appointed a Board Subcommittee on Planning, consisting of himself (Chairman), Dr. Brownstein, Dr. Detmer, Ms. Matheson, and Ms. Renninger.

Following Dr. Brandt's introduction, Dr. Elliot Siegel described the long-range planning strategy adopted by the Library in appointing five panels of outside experts--more than 130 in all--that represented the NLM's many constituencies: health professions, medical librarianship, and the information sciences. The panels covered five domains that corresponded to the Library's full range of responsibilities. The Long-Range Plan adopted by the Regents as a result of this process contained over 50 recommendations; the full report was published and widely distributed early in 1987. It is a plan for action, Dr. Siegel emphasized, and NLM staff use it as a touchstone for budgetary and program decisions. He distributed two charts showing how the various recommendations are being implemented and tracked. Three areas require special attention at this time: outreach to health professionals, training of medical librarians, and computer-based educational resources with a focus on electronic image libraries. The most immediate concern is with outreach, that is, the need for a plan that will enable us to inform the nation's health professionals of the Library's products and services and at the same time establish a permanent "feedback" mechanism that links the Library closely with its users so NLM be constantly aware of their needs and how well it is fulfilling them.

## A. Outreach

Mr. Robert Mehnert, NLM Public Information Officer, noted that there exists an extensive "outreach infrastructure" for the NLM, including the 4000-plus member Regional Medical Library Network, the NLM online network (now numbering some 20,000 users), the international MEDLARS network, the Medical Library Assistance Act which authorizes a wide-ranging program of grant support, and the Friends of the National Library of Medicine. Mr. Mehnert listed the members of the Outreach Planning Panel mentioned earlier; the first meeting of the Panel is November 21-22. The Panel will advise the NLM on how it can better reach the health professional community with information about its services, help to identify impediments to the use of its services; and perhaps suggest to the Library how it can construct a "closed feedback loop" to regularly receive criticism and suggestions from users. Three principles are being presented to the Panel: (1) The ultimate aim of the NLM is to improve the health care of Americans; (2) the highest priority is to provide information at the times and places most useful for decision-making in patient care; and (3) NLM should extend and improve its already considerable information resources for scientists. Several issues being presented to the Panel have to do with how NLM should assess the level of current awareness of NLM's services, how the impact of our outreach activities might be measured, and what should be the role of the Regional Medical Library Network in NLM's outreach.

Mr. Mehnert briefly detailed some current outreach efforts, including the expanded exhibits program, a planned radio and television public service announcement to be produced and distributed by the Friends of the National Library of Medicine, plans to install a toll-free number to the Library for the convenience of American health professionals, the latest two vignettes produced by NLM for the Discovery cable TV network's "Eye on Medicine" series, improvements in the NLM's bulletin board on the American Medical Association's AMANET system, the new edition of "Health Hotlines," recent articles in the professional literature and public media about NLM, and recent press releases issued by the Library.

Following Mr. Mehnert's report, Mr. Cathcart, Chairman of the Board's Outreach Subcommittee, raised the question of whether the Outreach Planning Panel was advisory to the Subcommittee or directly to the full Board. Dr. Brandt said it was his intention that the Panel would be advisory to the Board and that the Board's Planning and Outreach Subcommittees would closely follow the Panel's deliberations. Dr. DeBakey commented that the NLM should engage in outreach not to "exalt" the institution but, by providing rapid and convenient information services, to help physicians serve their patients better. She called on the Regents to keep the NLM and its services in mind when they speak with colleagues and address public forums. Dr. Sanford suggested that it might be advantageous to enlist the help of pharmaceutical representatives in providing pro bono materials for NLM to the physicians they call on.

## B. Training of Medical Librarians

Mrs. Lois Ann Colaianni, Associate Director for Library Operations, cited Goal 2.3 from the Long-Range Plan that called for the continued support of training for medical librarians and other information specialists to prepare them to adapt new technology to respond to the information needs of the biomedical community. The Plan recommends that NLM develop new prototype programs in U.S. library science schools containing special curricula that emphasize integrated information concepts. Mrs. Colaianni said that there are two important tasks in addressing this goal: (1) to define explicitly the most pressing long-term needs for training; and (2) to suggest the solutions.

The number of graduates of U.S. library science schools declined 38 percent (from 5137 to 3160) between 1976 and 1986. There now are 54 accredited schools of library science, a number that has been declining in recent years. These schools supply most of the medical librarians in the U.S. The first need of the medical library community, she said, is for an adequately trained pool of potential employees. The most recent data about library science students show that 81 percent of the students are female, only 44 percent are full time, 90 percent are white, 52 percent are married, and (of special interest to NLM) only 6.5 percent have a bachelor's degree in the sciences. About 45 percent said they preferred a job near their home. The largest percentage (29 percent) upon graduation wanted reference jobs, 16 percent were interested in library automation, 8 percent in cataloging, and 2.4 percent in abstracting or indexing. About 13 percent were interested in medical libraries. To sum up, the students attracted to library schools were generally married women, without science backgrounds, going to school in the area in which they live.

The data examining the characteristics of those students who said they were interested in medical librarianship are not yet available. In 1985, Mrs. Colaianni said, 28 percent of library school graduates were placed in public libraries; only 53 students were known to be placed in medical libraries. Over the last nine years there has been an increase of 237 professional positions in medical school libraries. However, nationwide, there have been recent reductions in staff in interlibrary loan, technical processing, outreach, stack maintenance, cataloging, circulation, and information services. Increases occurred in acquisitions, collection development, educational services, and administration. There is a need to update the skills of professional librarians already in the workplace. Mrs. Colaianni listed a number of the areas in which such continuing education is needed.

Medical librarianship has traditionally been a profession of women; now that women and minorities have a wider array of careers to consider, medical librarianship ranks well below other science careers in terms of prestige. Where and how will the professionals needed for the medical information age be trained? Earlier support for training did result in improvements--between 1971 and 1980, for example, NLM funded 193 trainee positions. Those who will be looking at how to meet the needs for trained medical librarians in the 1990s have a number of successful models to which to turn.

Following Mrs. Colaianni's presentation, Ms. Matheson commented that overall it was a depressing picture. She added that the salary structure was low--the average entry level salary for a health science librarian with a master's degree is \$19,500. Another problem is that there are few institutions where exciting work is taking place. We need to change the environment of the medical library so that it will be perceived as a desirable and dynamic place to work. We should do more than train people to "adapt" to technology--they need to be involved in developing and introducing new technologies into the workplace. Dr. Randall added that making opportunities in the profession known to students and potential students should be viewed as an aspect of NLM's outreach responsibility. The Regional Medical Libraries also should be involved in more continuing education training programs. Dr. Brandt said that the possibility might be explored of developing joint-degree programs between library schools and schools of the health sciences. Dr. Beering reported on an ambitious project within the state of Indiana (\$34 million in state money, and an additional sum, half that in private funds) that would automate the research libraries in 39 universities around the state; this is a move into modern information management and away from traditional library functions.

### C. Digital Image Library

Dr. Daniel Masys, Director of the Lister Hill Center, quoted the recommendation in the Long-Range Plan that "NLM should thoroughly and systematically investigate the technical requirements for and feasibility of instituting a biomedical image library." More than most recommendations in the Plan, he said, that for a digital images library is constrained by the available technology. Newer personal computers can treat a screen as a field of millions of pixels (dots) that may be manipulated to display images as easily as they can alphanumeric characters. When these images are sent across communications links, however, there are severe limitations to the speed of transmission. The NLM has had a series of projects over the years dedicated to digital and other images, for example, the LHC's Electronic Document Storage and Retrieval Project, an x-ray imaging project, and the rendering of digital data into color graphics--a component of the molecular biology workstation. The following factors must be considered when deciding to build digital image libraries: They will be expensive; current microcomputers are barely adequate in power to render complex images with fidelity; and few standards exist for moving images between dissimilar systems. On one hand, Dr. Masys said, to take the lead in such a project before there is a sufficient base of users with the requisite hardware could lead to technical obsolescence of NLM's library of images or an unjustifiably small user community. On the other hand, building an image library might create a market for it among NLM's user community.

A workshop was convened by the Lister Hill Center earlier this year of representatives from eight medical schools whose departments of anatomy are creating computerized 3-dimensional representations of human anatomy. [Dr. Masys played for the Board a videotape depicting the

possibilities of imaging technology, created by Dr. Cornelius Rossi and his colleagues at the University of Washington in Seattle.] At the workshop it was learned that although several groups are pursuing regional capture of anatomic images, they are not collaborating with one another or using compatible image file formats, and none had the resources to undertake a complete computer-based representation of a human being. Out of the workshop emerged the notion of a "visible human" project, the product of which would be a data set of xyz coordinates for every structure in the human body--male and female--at a resolution of, perhaps, 1 x 1 millimeter. The source would be two carefully selected cadavers. Dr. Masys said the project would require an effort estimated at 20-30 person years and yield about 4 billion bytes of data. Such an undertaking is one example of a project consistent with the Long-Range Plan's recommendation about digital image libraries. The judgment about whether such a project would result in a system used sufficiently to justify the resources expended on it, is something the Board might want to consider. The overall role of the Library in this area is something that the Planning Panel will consider.

Following Dr. Masys presentation, Dr. Feigenbaum commented that the rule of thumb that \$1 spent on research blossoms into \$10 in development costs and \$100 in actual production has application here. Why electronic images now? First, because enabling technology--fundamentally cheap memory--is available. Second, there have been very large increases in desk-top computer processing power. Third, there has been significant progress toward higher resolution devices for presenting information on screens. Dr. Masys' comment that current PCs are marginally up to the job should be viewed keeping in mind that today's microcomputers will soon be considered archaic. Dr. Feigenbaum noted that the technology of "visualization" is receiving a great impetus from advertising and animation techniques being used in television. Also, there has been a great growth in the application of this technology in the physical sciences and engineering. He said there is increasing entrepreneurial interest in medical imaging; NLM can play an important role in helping to direct this energy so that the resulting products are not largely incompatible. If the Library wants to have such influence, it must be perceived as technologically competent in the field. For that reason, he recommends that the NLM move ahead with the proposed imaging project. But if we do more of this, what do we do less of? Someone will have to make that choice. Another question: How does the Library know that medical schools want to integrate this technology into the curriculum? How do we know that physicians want to integrate visualization into their various practices? How do we know that there are entrepreneurs who would develop products based on electronic images prepared by NLM? We should beware of "technology push"; what we want is "user pull." Nevertheless, he believes that it is appropriate for the NLM to take a lead role in medical imaging, thus breaking into the "chicken-and-egg" cycle that has developed.

There was a discussion among the Regents about whether there is sufficient "pull" by the health professional community for imaging

systems. Dr. Faye Abdellah commented that it is her opinion that the proposed project is just the sort of thing the Long-Range Planners had in mind and that the NLM should be moving ahead on the digital imaging library. Dr. Brandt directed the staff to proceed at once to appoint the Planning Panel that will consider this subject. Although the Panel will no doubt make specific suggestions on ways to go, he said, the present comments from the Board indicate clearly that the Regents want NLM to move into this area.

## XI. DENTAL INFORMATICS

Dr. James F. Craig, Director of Dental Informatics at the Baltimore College of Dental Surgery (University of Maryland), traced the roots of the effort to apply educational technology to the teaching of dentistry to 1950, when continuing education programs were televised in Baltimore. Over the next decade a variety of technological applications were devised, including satellite transmission, patient simulations, and test item banks in dental education. In the 1980s, the major focus has been on the development of computer applications and the exploration of laser technology for dental education and practice. Dr. Craig noted the creation of the first Division of Dental Informatics at the University of Maryland in 1985, and the publication of the first book on the subject by a Maryland faculty member, Dr. John Zimmerman. He described the national effort to create a dental informatics organization and the move by Maryland faculty to begin a review section on dental software in the Journal of Dental Education. Building on the Integrated Academic Information Management Systems (IAIMS) concept, Dr. Craig said, was the effort in the University of Maryland dental school to create an information resources management committee which integrates administrative, academic, research, and clinical informatics activities. Current plans call for introducing Maryland students to interactive videodisc technology--11 interactive simulations and a videodisc of dental images are now being prepared.

Following Dr. Craig's presentation, Dr. John Zimmerman, Director of Academic Computing and Health Informatics at the University of Maryland (Baltimore), described a number of important initiatives in dental informatics now under way in other universities and under the sponsorship of the American Association of Dental Schools (AADS). He classified these projects under several headings representing increasing complexity: (1) communications systems (input/output of data) for local and national conferencing systems and for intraschool communications and networking; (2) data storage and retrieval--information systems for dental clinics, for example; (3) computing and automation (laboratory, imaging, statistics); (4) decision support systems (computer-assisted diagnosis and expert systems); (5) therapeutic support systems; and (6) systems for education, research, and development--for example, interactive simulations. Dr. Zimmerman reported on several IAIMS-related dental systems, including those at the University of Maryland (called DENTSYS) and at West Virginia University.

Following Dr. Zimmerman's presentation, Dr. John Salley, Director of Oral Pathology at the Virginia Commonwealth University School of Dentistry, spoke about the prospects for dental informatics and the

dental profession. He described changes that the profession is now undergoing: altered dental disease patterns (lessening incidence of caries, for example); changes in the nature of patient populations (e.g., increasing geriatric patients); increased emphasis on oral diagnosis and oral medicine and less emphasis on dental technology; and a larger knowledge and factual base in the profession and the consequent need to organize, store, and retrieve these data. Dr. Salley noted briefly several areas, including computer imaging and computerized laboratory analysis, in which there are new information technologies under development. He said that there is a need to graft new methods onto older, proven information technologies to improve current practices, and he noted several examples in the area of networking and patient record databases. Related to this is the need for integrating information flow (patient records, treatment planning, financial management, etc.) with patient progress. Dentistry, Dr. Salley said, because it is more circumscribed than medicine--professionally, anatomically, and clinically--may be a good test-bed for analyzing the effectiveness of new information technologies. In summary, he said, dentistry has been and continues to be very active in using information technology and much high-quality work going on around the country in dental informatics and the prospects for the future are exciting. There is a large base of installed micro-computers; 29 percent of practicing dentists use PCs. This number is expected to rise to 75 percent by the year 2000. The AADS is positioned to lead in forming and directing this critical mass so that dental informatics can be moved into the main stream of the profession. An intensive workshop to engage in strategic planning is a needed next step. Dr. Salley said he hoped the profession could call upon the medical informatics knowledge and expertise within NLM as dentistry moves forward in this area.

Following the presentations, there was a general discussion of how well the NLM serves the dental profession; for example, how good is coverage of the dental literature in MEDLINE? Mrs. Colaianni said that all of the dental journals now in MEDLINE have been recommended by the American Dental Association; there are more journals on dentistry than any other subject. Dr. Lindberg said that nevertheless the profession's use of MEDLINE is quite small and may indicate that NLM should improve the quality of its services to dentistry.

## XII. NIH DIRECTOR'S ADVISORY COMMITTEE MEETING

Dr. Brandt reported briefly on the last meeting of the NIH Director's Advisory Committee (which he attends as a representative of the Board of Regents). Much of the meeting was devoted to discussing the recently completed round of regional meetings of the Advisory Committee that were convened to consider "The Health of Biomedical Research Institutions." Among the issues discussed at the meetings were peer review, research resources and facilities, animal research, flexibility and continuity of research funding, indirect costs, and minority training and career development. Dr. Brandt said that there

is a national organization called the Committee to Abolish Peer Review that wants to see instituted an allocation system that would distribute research funding on a per capita basis. It appears that there is much misunderstanding on two matters: the true state of NIH funding (investigators are under the continuing misapprehension that NIH budgets have been cut) and the seriousness with which the animal-rights movement should be taken. Indirect costs, which are viewed as a "slush fund" at some universities, came in for much discussion.

#### XIII. INTERNATIONAL MEDLARS POLICY ADVISORY GROUP MEETING

Dr. Richard Hsieh, NLM Director for International Programs, reported on the September 5-6 meeting of representatives of the international MEDLARS Centers in Canberra, Australia. That country is celebrating its bicentennial. The IMPAG meeting, which is held every two years, was hosted this year by the National Library of Australia, which includes medical literature in its collections. Four of the 17 centers were unable to send delegates; Dr. Lindberg, Mrs. Colaianni, and Dr. Hsieh attended for NLM. IMPAG meetings are held to discuss the latest MEDLARS policies announced by NLM, to exchange views and discuss issues of mutual concern and to improve cooperation among the International partners. Dr. Hsieh gave a brief report on how the International Centers access MEDLINE--some come online to NLM, others use MEDLARS tapes on their own computers--and the amount of use they make of the system. He reported briefly on personnel changes at a number of the Centers. Among the topics given special attention at the meeting were biotechnology, Grateful Med, MEDLINE on CD-ROM, journal selection procedures, and reference services in the area of AIDS. Dr. Hsieh reported briefly on the discussions of each topic.

#### XIV. REPORT OF THE ACTING ASSOCIATE DIRECTOR FOR EXTRAMURAL PROGRAMS

Mr. Arthur J. Broering discussed the FY 1989 Extramural Programs' budget and provided an estimated breakdown by program area of the \$16.1 million available. Funds for competing IAIMS grants in FY 1989 are estimated at \$1.4 million. Four Phase III competing proposals are awaiting final Board action at this meeting. Mr. Broering quoted from an article in the September NLM News on the IAIMS Program: "... the Library in FY 1989 will direct its available IAIMS funds toward Phase III efforts, and, of course, to existing IAIMS grantee commitments. Although new Phase I and II awards will not be made until further notice, NLM's Resource Grants Program supports IAIMS-related activities, and these kinds of projects may still compete for support." Mr. Broering then addressed the amount set aside for Training Grants. In FY 1989 \$207,000 will be available for competing activities. NLM is looking into the possibility of using these funds to establish a fellowship program. The seven current training grants in medical informatics and all others awarded since 1972 were funded as institutional grants. The Board will be informed about the plans for training fellowships in future meetings. He then noted that Medical Informatics Research in FY 1989, as in FY 1988, has received an



additional one million dollars for new projects in biotechnology. In addition, funds of approximately \$400,000 are available for three new Medical Informatics Grants. Mr. Broering emphasized that, although the facts of Medical Informatics' budget inadequacies are inescapable, the total picture is not as negative as is often apparent when a new fiscal year's budget is reviewed for the Board. Mr. Broering illustrated his point by comparing initial and actual (final) competing budget figures for the last three years in the Medical Informatics area and identified the variety of actions which produced the significant differences, e.g., reductions in commitments, dollar transfers from other grant authorities or other parts of the Library, and actions taken which, in effect, transfer NLM commitments from one year to another. A discussion ensued in response to Dr. Feigenbaum's concern that the Medical Informatics Program is taking a backseat to Biotechnology after a very successful beginning. Dr. Lindberg noted that some money gets into that area through contractual activities, such as the Unified Medical Language System (UMLS) which strongly supports medical informatics. Congress has been very receptive to the UMLS and the biotechnology aspects--easily understood concepts--while a term like "knowledge representation" is not easily understood outside the community and therefore does not foster great enthusiasm.

#### XV. PROPOSED MODIFICATIONS OF THE RESOURCE GRANT PROGRAM

NLM hosted a meeting of consultants in June to address concerns about the quality and quantity of Resource Grant applications and the program's effectiveness. At their meeting on Wednesday, the Board's Extramural Programs Subcommittee considered the recommendations of this group. Before asking Dr. Randall, who chairs the Subcommittee, to report on the outcome of the Subcommittee discussions, Mr. Broering gave a brief history of the Resource Grant Program, as described in the agenda book, and listed the recommendations for change in the program made by the consultants at the June meeting.

The most significant of the recommended changes include: the establishment of an "Information Access Grant," designed to improve local access to health-science information by incorporating modern electronic information systems and the modification of the Project Grants which will place high priority on projects that propose the effective use of extant technology to improve direct services to users. The "Access" Grant would replace the current Improvement Grant Program and, to expedite funding, would not require routine review by the Board of Regents. Both grant types would stress the need to demonstrate cost-sharing. New procedures for the wide communication of information about all grants and grant results would be established.

Dr. Randall commented for the Extramural Programs Subcommittee. The members had no basic problems with the modifications and were in favor of the changes in the Resource Improvement Grants Program which will respond directly to the changes in today's technological environment. The recommendation to streamline the process and shorten the review cycle should further stimulate participation. The Subcommittee concurred that the small proposals should be considered for funding following initial merit review, without final review by the Board of

Regents. A motion to proceed with the implementation of the small-grants program was approved unanimously by the Board. On the other hand, while the Subcommittee was in agreement in principle with the overall concept of the modifications, Dr. Randall noted that the proposed increased communication regarding the results of the grants together with the short report that will be required, are important improvements and might be an area of involvement with the Outreach Panels. Most importantly, the members agreed that the guidelines for the Project Grant ought to be more specific in terms of goals. The Subcommittee requested that the Library come back to the Board at its January meeting with concise articulation of how the programmatic goals are served by and are consistent with the overall Long-Range Plan. In this regard, Dr. Randall cited Planning Domain 2, Locating and Gaining Access to the Literature. Ms. Matheson, a member of the Subcommittee, voiced her concern that the matter of measuring the rate of success had not been articulated in the presentation. She questioned how NLM would evaluate the programs' achievements in about five years. No specific connection has been made to the Long-Range Plan, nor is there an explicit statement on the expectations of success.

After some further discussion, the Chairman presented a motion to approve the changes in principle, and request staff to draft an additional document to be mailed to the members of the Subcommittee and the Chairman of the Board for their review, with a response communicated to NLM staff by mail. The motion was passed unanimously.

In conclusion, the Chairman asked NLM staff to answer the three specific questions in a memorandum to the full Board on (1) the relationship of the changes to the Long-Range Plan, (2) why the changes were proposed, and (3) what the criterion of success will be.

#### XVI. OTHER BUSINESS

The Board honored Dr. John P. McGovern, former Board member and Chairman, on his retirement for his accomplishments in medicine and his services to the library community. The resolution (Attachment E) will be sent to him.

Before closing the meeting for the grant application review, the Board passed a motion to recognize Dr. Marsden S. Blois, Jr., who died on July 15, for his many contributions to the National Library of Medicine. It was requested that a letter be sent to his family and the University of California at San Francisco stating the Board's sentiments.

-----

MEETING CLOSED FOR THE REVIEW OF GRANT APPLICATIONS, 10:35 A.M., OCTOBER 7

-----

XVII. REVIEW OF PENDING APPLICATIONS

Before proceeding with the consideration of pending applications, Dr. Roger W. Dahlen, Chief, Biomedical Information Support Branch, EP, informed Board members of confidentiality and conflict-of-interest procedures and reminded them to sign, at the conclusion of the grant application review, the statement noting that they had not participated in the discussion of any application which presented a conflict of interest.

The Board reviewed 42 applications, requesting \$21,140,852, and recommended for approval 30 applications in the amount of \$10,958,527 for the total years requested. Twelve applications in the amount of \$6,946,777 were disapproved. Grant applications recommended for approval by the Board are listed in the summary actions (Attachment D). Interim actions taken by the Extramural Programs staff since the May meeting were considered by the Board's Extramural Programs Subcommittee and noted and concurred with by the Board of Regents.

XVIII. ADJOURNMENT

The meeting was adjourned at 10:45 a.m. on Friday, October 7, 1988.

\* \* \* \* \*

- Wednesday, October 5, 1988, 4:00 to 5:00 p.m.  
(Program Outreach Subcommittee--List of Attendees under Attachment B)
- Wednesday, October 5, 1988, 2:00 to 3:45 p.m.  
(Extramural Programs Subcommittee--List of Attendees under Attachment C)
- Wednesday, October 5, 1988, 2:00 to 5:00 p.m.  
(Lister Hill Center Subcommittee--List of Attendees under Attachment D)

Thursday and Friday, October 6 and 7, 1988  
(Full Board of Regents)

\* \* \* \* \*

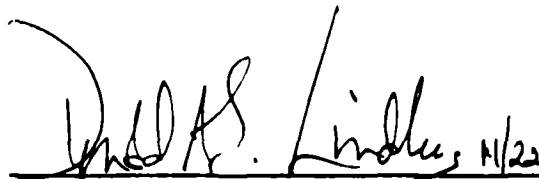
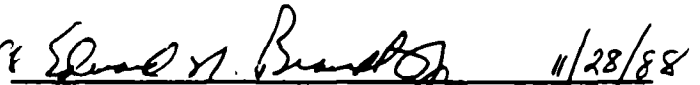
ACTIONS TAKEN BY THE BOARD OF REGENTS

1. The Board approved NLM's proposal to appoint an Outreach Planning Panel under the purview of the Board's Planning Subcommittee.
2. The Chairman appointed a Planning Subcommittee, consisting of Dr. Brownstein, Dr. Detmer, Ms. Matheson, Ms. Renninger, and himself as Chairman.
3. The Board approved the recommendation that the small grants be considered for funding following initial merit review only, without final review by the Board of Regents.

4. The Board approved the modifications to the Resource Grant Program in principle, but requested staff to draft an additional document to be mailed to members of the Subcommittee and the Board Chairman for their review, with a response to be communicated to NLM staff by mail.
5. The Chairman asked NLM staff to answer the following specific questions regarding the modifications in a communication to the full Board: (1) the relationship of the changes to the Long-Range Plan, (2) why the changes were proposed, and (3) what the criterion of success will be.
6. The Board honored Dr. John P. McGovern, former Board member and Chairman, on his retirement with a resolution for his accomplishments in medicine and his services to the library community (Attachment E).
7. The Board passed a motion to recognize Dr. Marsden S. Blois, Jr., who died on July 15, for his contributions to the National Library of Medicine.
8. The Board concurred with recommendations of the Extramural Programs Subcommittee. Grant applications for approval are listed in the summary actions (Attachment F).

\* \* \* \* \*

I hereby certify that, to the best of my knowledge, the foregoing minutes and attachments are accurate and complete.

 <u>Donald A. B. Lindberg, M.D. (Date)</u>	 <u>Edward N. Brandt, Jr., M.B., Ph.D. (Date)</u>
Executive Secretary	Chairman

## BOARD OF REGENTS OF THE NATIONAL LIBRARY OF MEDICINE

## CHAIRMAN

**BRANDT, Edward N., Jr., M.D., Ph.D. (8/3/89)**

President

University of Maryland at Baltimore

520 West Lombard Street

Baltimore, MD 21201

301-328-7002**BEERING, Steven C., M.D.**

President

Purdue University

West Lafayette, IN 47907

**(8/3/91)**317-494-9708**MATHESON, Nina W.**

Director

William H. Welch Medical Library

Johns Hopkins University

School of Medicine

1900 East Monument Street

Baltimore, MD 21205

**(8/3/90)**301-955-3411**CATHCART, H. Robert**

President

Pennsylvania Hospital

Eighth and Spruce Streets

Philadelphia, PA 19107

**(8/3/90)**215-829-3312**RANDALL, Ann K., D.L.S.**

Professor and Chief Librarian

The City College of CUNY

5333 North Academic Center

138th Street and Convent Avenue

New York, NY 10031

**(8/3/89)**212-690-4271**DETMER, Don E., M.D.**

Vice President for Health Affairs

University of Virginia

Box 179, Medical Center

Charlottesville, VA 22908

**(8/3/91)**804-924-2444**FEIGENBAUM, Edward A., Ph.D.****(8/3/90)**

Professor of Computer Science

Computer Science Department

Stanford University, HPP Bldg. C

Stanford, CA 94305

415-723-4878

## EX OFFICIO MEMBERS

## Primary

## Alternate

**BECKER, Quinn H., Lt. Gen., MC, USA**

The Surgeon General

Department of the Army

5111 Leesburg Pike

Falls Church, VA 22041-3258

703-756-0000**FAUVER, Howard E., Col., MC, USA**

Chief

Graduate Medical Education Branch

U.S. Army Health Professional Support

Agency (SGPS-EDM)

5109 Leesburg Pike

Falls Church, VA 22041-3258

703-756-8036

10/3/88

Board of Regents Roster (Continued)

**Primary**

**Alternate**

**BILLINGTON, James H., D.Phil.**  
 Librarian of Congress  
 Library of Congress  
 10 First Street, S.E.  
 Washington, DC 20540 202-287-5205

**CHESNEY, Murphy A., Lt. Gen., USAF, MC**  
 Surgeon General  
 Department of the Air Force  
 Bolling Air Force Base  
 Washington, DC 20332-6188 202-767-4343

**GRONVALL, John, M.D.**  
 Chief Medical Director  
 Veterans Administration  
 Dept. of Medicine and Surgery  
 810 Vermont Avenue, N.W.  
 Washington, DC 20420 202-233-2596

**HOWARD, Joseph H.**  
 Director, National Agricultural Library  
 U.S. Department of Agriculture  
 10301 Baltimore Boulevard  
 Beltsville, MD 20705 301-344-4248

**KINGSBURY, David T., Ph.D.**  
 Asst. Director for Biological,  
 Behavioral, and Social Sciences  
 National Science Foundation  
 1800 G Street, N.W., Room 506  
 Washington, DC 20550 202-357-9854

**KOOP, C. Everett, M.D., Sc.D.**  
 Surgeon General, PHS, and  
 Director, Office of International Health  
 200 Independence Avenue, S.W.  
 Washington, DC 20201 202-245-6467

**SANFORD, Jay P., M.D.**  
 Dean, Uniformed Services University  
 of the Health Sciences  
 F. Edward Hebert School of Medicine  
 4301 Jones Bridge Road  
 Bethesda, MD 20814-4799 301-295-3013

**ZIMBLE, James A., Vice Adm., MC, USN**  
 Surgeon General  
 Office of the Chief of Naval  
 Operations (OP-093)  
 Department of the Navy  
 Washington, DC 20350-2000 202-697-0587

**DeHART, Rufus M., Jr., Brig. Gen., USAF, MC**  
 Director, Professional Affairs and  
 Quality Assurance (SGP)  
 Bolling Air Force Base  
 Washington, DC 20332-6188 301-767-1849

**RENNINGER, Karen**  
 Chief, Library Division 142D  
 Veterans Administration  
 810 Vermont Avenue, N.W.  
 Washington, DC 20420 202-233-2711

**BROWNSTEIN, Charles N., Ph.D.**  
 Director, Directorate for Computer and  
 Information Science & Engineering  
 National Science Foundation  
 1800 G Street, N.W.  
 Washington, DC 20550 202-357-7936

**ABDELLAH, Faye G., Ed.D., Sc.D.**  
 Deputy Surgeon General, PHS  
 Parklawn Building, Room 18-67  
 5600 Fishers Lane  
 Rockville, MD 20857 301-443-4000

**SCHINSKI, Vernon D., Capt., MC, USN**  
 Commanding Officer, Naval Health  
 Services and Education Command  
 Department of the Navy  
 Bethesda, MD 20814-5022 301-295-0293

**EXECUTIVE SECRETARY**

**LINDBERG, Donald A. B., M.D.**  
 Director  
 National Library of Medicine  
 Bethesda, MD 20894 301-496-6221

BOARD OF REGENTS

PROGRAM OUTREACH SUBCOMMITTEE MEETING

October 5, 1988

4:00 to 5:00 p.m.

ATTENDEES

Subcommittee Members Present:

Mr. H. Robert Cathcart, Chairman  
Dr. Faye G. Abdellah  
Dr. Lois E. DeBakey, Consultant  
Ms. Karen Renninger

NLM Staff Present:

Dr. Donald A. B. Lindberg, Director, NLM  
Mr. Kent A. Smith, Deputy Director, NLM  
Dr. Elliot Siegel, Assistant Director for Planning, OD, NLM  
Ms. Susan Buyer-Slater, Deputy Assistant Director for Planning, OD, NLM  
Mr. Robert Mehnert, Chief, Office of Inquiries and Publication  
Management, OD

Summary of Minutes

The minutes of the Subcommittee's May 16 meeting were approved as presented.

Dr. Elliot Siegel briefly described the Library's intention to update the Long-Range Plan in three areas. The first area, outreach, will be the subject of review at an Outreach Planning Panel meeting in November. Dr. Siegel listed the members of the Panel, which will be chaired by Dr. Michael DeBakey. The Panel will meet twice in 1989 to complete its work of reviewing and making recommendations about NLM's outreach activities. The other two areas are the training of medical librarians and the development of digital image libraries. Plans for all three areas will be discussed at the Board of Regents meeting tomorrow, by Mr. Mehnert, Mrs. Colaianni, and Dr. Masys, respectively.

Mr. Mehnert briefly previewed the remarks he intends to make to the full Board tomorrow. His presentation will cover two main topics--the need for and organization of the Outreach Planning Panel, and an update on current public information/outreach activities.

Following staff presentations, the subcommittee members discussed the composition of the Outreach Planning Panel, suggesting the inclusion of more representatives from other health professions. Also, the Subcommittee Chairman wanted it to be made explicit that the Outreach Panel would be advisory to the Board of Regents, not the Subcommittee. This issue will be raised tomorrow with Dr. Brandt and discussed at the Board meeting.

BOARD OF REGENTS  
EXTRAMURAL PROGRAMS SUBCOMMITTEE MEETING

October 5, 1988

2:00 to 3:45 p.m.

A T T E N D E E S

Subcommittee Members Present:

Dr. Ann K. Randall, Chairman  
Ms. Nina W. Matheson  
Dr. Steven C. Beering  
Dr. Jay P. Sanford

Unable to Attend:

Dr. Don E. Detmer

NLM Staff Present:

Mr. Arthur J. Broering, Acting Associate Director, EP  
Mrs. Ruth Bortz, Grants Management Specialist, EP  
Dr. Jeanne L. Brand, Chief, International Programs Branch, EP  
Mr. Peter Clepper, Program Officer, EP  
Mrs. Karin K. Colton, Committee Management Assistant, EP  
Dr. Roger W. Dahlen, Chief, Biomedical Information Support Branch, EP  
Ms. Rose Marie Holston, Program Analyst, EP  
Mrs. Frances E. Johnson, Program Officer, EP  
Dr. M. Kathleen Nichols, Grants Management Specialist, EP  
Mr. Richard T. West, Chief, Office of Program Planning and Evaluation, EP



B O A R D O F R E G E N T S

LISTER HILL CENTER SUBCOMMITTEE

October 5, 1988

2:00 to 5:00 p.m.

A T T E N D E E S

Subcommittee Members Present:

Dr. Edward A. Feigenbaum  
Dr. Faye G. Abdellah

Unable to Attend:

Dr. David T. Kingsbury

NLM Staff Present:

Dr. Donald A. B. Lindberg, Director, NLM  
Dr. Harold M. Schoolman, Deputy Director for Research and Education, NLM  
Dr. Daniel R. Masys, Director, Lister Hill National Center for Biomedical  
Communications (LHNCBC)  
Mr. Earl Henderson, Deputy Director, LHNCBC  
Mr. George Thoma, Chief, Communications Engineering Branch, LHNCBC  
Mr. Dennis Benson, Acting Chief, National Center for Biotechnology  
Information Branch, LHNCBC  
Mr. Michael Ackerman, Chief, Educational Technology Branch, LHNCBC

Summary of Minutes:

Presentations were given to the committee on Digital Image Libraries and the Biotechnology Information Program.

Digital Image Libraries:

Drs. Masys and Ackerman presented background material on the evolving technologies which permit computer-based representation of images. Lister Hill Center efforts involving imaging were reviewed, including the Electronic Document Storage and Retrieval Project, the X-Ray Imaging System, and the Orthopedic Knee Program. A videotape, demonstrating 3-D anatomical reconstruction by computer was shown, in preparation for presentation to the Board on the 6th. The subcommittee members endorsed Lister Hill Center involvement in imaging projects and urged the convening of a followup Long-Range Planning panel for digital imaging.

Biotechnology:

Dr. Masys reviewed the current projects of the Library in the area of molecular biology/biotechnology, as well as the legislative status of the proposed Center. Subcommittee members approved the growing NLM program plans in this area.

**Resolution on the Retirement of**

**John P. McGovern, M.D.**

**Adopted by the**

**Board of Regents of the National Library of Medicine**

**on October 6, 1988**

**WHEREAS John P. McGovern, M.D., embodies a unique union of creativity, medical acumen, scholarship, and philanthropy which places him in the front rank of American physicians; and**

**WHEREAS John P. McGovern, M.D., has combined these talents with a love of and concern for libraries of all kinds, including health science libraries; and**

**WHEREAS John P. McGovern, M.D., was a member of the National Library of Medicine Board of Regents from 1970 to 1974 and provided distinguished leadership to that body as Chairman (1973-1974), playing an important role during a time of great expansion for the Library, including his crucial support in obtaining approval and funds for the Lister Hill Center Building; therefore**

**BE IT RESOLVED that the Board of Regents acknowledges on behalf of the National Library of Medicine and the American medical community a great debt of gratitude for the selfless contributions of John P. McGovern, M.D., and wishes him a long and happy retirement.**

AS OF 11/22/88

RESUME OF COUNCIL RECOMMENDATIONS, BY PROGRAM  
(PRIVILEGED COMMUNICATION)

COUNCIL DATE: SEPT./OCT. 1988

COUNCIL RECOMMENDATION  
PRIORITY  
ACTION AMOUNTS NOTATION

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

IRG RECOMMENDATION  
PRIORITY

APPLICATION, INVESTIGATOR & ORGANIZATION FY YEAR REQUESTED ACTION AMOUNTS PERCENTILE ACTION AMOUNTS NOTATION

1 G07 LM04871-01A1 IRG: BLR 89 01A1 4,208 APP 4,208 214  
SOLIMINE, MARY ANN  
KESSLER INST. FOR REHABILITATION  
WEST ORANGE NJ 10/01/88  
MEDICAL LIBRARY RESOURCE IMPROVEMENT  
98-NOT SUBJECT TO HUMAN SUBJECT CODING SYSTEM.  
98-ANIMAL CODING NOT APPLICABLE.

1 G07 LM04979-01 IRG: BLR 89 01 4,953 APP 4,953 210  
STODDART, REBECCA W  
E J NOBLE HOSPITAL/KINNEY NURSING HOME  
GOUVERNEUR NEW YORK 02/01/88  
MEDICAL LIBRARY RESOURCE IMPROVEMENT  
98-NOT SUBJECT TO HUMAN SUBJECT CODING SYSTEM.  
98-ANIMAL CODING NOT APPLICABLE.

1 G07 LM04992-01 IRG: BLR 89 01 4,000 APP 4,000 250  
EGELSTON, DEBRA J  
A.L. LEE MEMORIAL HOSPITAL  
FULTON NY 12/01/88  
MEDICAL LIBRARY RESOURCE IMPROVEMENT  
98-NOT SUBJECT TO HUMAN SUBJECT CODING SYSTEM.  
98-ANIMAL CODING NOT APPLICABLE.

1 G07 LM04997-01 IRG: BLR 89 01 13,188 APP 13,188 110  
DICKERSON, BEA  
STEVENS MEMORIAL HOSPITAL  
EDMONDS WA 12/01/88  
MEDICAL LIBRARY RESOURCE IMPROVEMENT  
98-NOT SUBJECT TO HUMAN SUBJECT CODING SYSTEM.  
98-ANIMAL CODING NOT APPLICABLE.

1 G07 LM05002-01 IRG: BLR 89 01 4,000 APP 4,000 221  
HEINGERTEN, NANCY  
WATERVILLE OSTEOPATHIC HOSPITAL  
WATERVILLE ME 11/01/88  
MEDICAL LIBRARY RESOURCE IMPROVEMENT  
98-NOT SUBJECT TO HUMAN SUBJECT CODING SYSTEM.  
98-ANIMAL CODING NOT APPLICABLE.

1 G07 LM05003-01 IRG: BLR 89 01 1,600 APP 1,600 180  
TOMLIN, ANNE C  
PROFESSIONAL LIBRARY SERVICES  
AUBURN NEW YORK 11/01/88  
MEDICAL LIBRARY RESOURCE IMPROVEMENT  
98-NOT SUBJECT TO HUMAN SUBJECT CODING SYSTEM.  
98-ANIMAL CODING NOT APPLICABLE.

	IRG:	SRC	89	04	1,017,404	APP	1,017,404	144	APP	1,017,404	CON
2 G08 LM04392-04				04	1,017,404	APP	1,017,404		APP	1,017,404	
BROERING, NAOMI C		02		05	1,016,615		1,016,615			1,016,615	
GEORGETOWN UNIVERSITY				06	1,029,278		1,029,278			1,029,278	
WASHINGTON DIST OF COL	12/01/88			07	1,015,140		1,015,140			1,015,140	
BIOTECHNOLOGY & BIOMEDICAL KNOWLEDGE NETWORK											
					98-NOT SUBJECT TO HUMAN SUBJECT CODING SYSTEM.						
					98-ANIMAL CODING NOT APPLICABLE.						
2 G08 LM04411-04			89	04	1,000,000	APP	1,000,000	229			
BRANDT, EDWARD N JR		02		05	1,000,000		1,000,000				
UNIVERSITY OF MARYLAND				06	1,000,000		1,000,000				
BALTIMORE	10/01/88			07	1,000,000		1,000,000				
				08	1,000,000		1,000,000				
CENTER OF EXCELLENCE FOR INFORMATICS											
					98-NOT SUBJECT TO HUMAN SUBJECT CODING SYSTEM.						
					98-ANIMAL CODING NOT APPLICABLE.						
2 G08 LM04419-04			89	04	1,005,612	APP	1,005,612	114			
CLAYTON, PAUL D		02		05	1,004,278		1,004,278				
COLUMBIA UNIV HLTH SCIENCES				06	1,005,656		1,005,656				
NEW YORK	12/01/88			07	1,000,921		1,000,921				
				08	1,003,261		1,003,261				
PHASE III IAIMS IMPLEMENTATION AT COLUMBIA-PRESBYTERIAN											
					98-NOT SUBJECT TO HUMAN SUBJECT CODING SYSTEM.						
					98-ANIMAL CODING NOT APPLICABLE.						
1 G08 LM04498-01A1			89	01A1	312,000	APP	312,000	173			
THOMPSON, CLINTON M				02	32,000		32,000				
UNIVERSITY OF OKLAHOMA HLTH SCIENCES CTR				03	10,000		10,000				
OKLAHOMA CITY OKLAHOMA	01/01/89										
OUHSC INTEGRATED LIBRARY SYSTEM/OMIN											
					98-NOT SUBJECT TO HUMAN SUBJECT CODING SYSTEM.						
					98-ANIMAL CODING NOT APPLICABLE.						
1 G08 LM04948-01			89	01	81,511	APP	81,511	221			
FENICHEL, CAROL HANSEN											
HANNEMANN UNIVERSITY											
PHILADELPHIA PA	12/01/88										
LIBRARY MICROCOMPUTER LABORATORY EXPANSION											
					98-NOT SUBJECT TO HUMAN SUBJECT CODING SYSTEM.						
					98-ANIMAL CODING NOT APPLICABLE.						

2 R01 LM04298-04A1	IRG: BLR 89	04A1	94,640	APP	94,640	175
SMITH, JACK M, JR		05	118,223		118,223	
OHIO STATE UNIVERSITY		06	121,926		121,926	
COLUMBUS	12/01/88					
COMPUTER BASED PATHOLOGY CONSULTATION SUBMODULE						
			30-HS INV.-CERTIFIED, NO IRG CONCERNS/COMMENTS. 10-NO LIVE VERTEBRATE ANIMALS INVOLVED.			
1 R01 LM04453-01A2	IRG: BLR 89	01A2	148,287	APP	148,287	368
DELAND, EDWARD C		02	143,189		143,189	
UNIVERSITY OF CALIFORNIA		03	149,863		149,863	
LOS ANGELES	12/01/88					
PHYSICIAN SUPPORT SYSTEM, PHASE I: PATIENT MODEL						
			10-NO HUMAN SUBJECTS INVOLVED. 10-NO LIVE VERTEBRATE ANIMALS INVOLVED.			
3 R01 LM04487-04S1	IRG: BLR 89	04S1	45,130	APP	45,130	314
BECK, JOHN R		05	48,295		48,295	
DARTMOUTH COLLEGE						
HANOVER	NEW HAMPSHIRE 10/01/88					
COMPUTER-BASED EXERCISES IN PATHOPHYSIOLOGIC DIAGNOSIS						
			10-NO HUMAN SUBJECTS INVOLVED. 10-NO LIVE VERTEBRATE ANIMALS INVOLVED.			
1 R01 LM04865-01A1	IRG: BLR 89	01A1	24,256	APP	24,256	399
GREENBAUM, LEON J, JR						
UNDERSEA & HYPERBARIC MEDICAL SOCIETY						
BETHESDA	MD 11/01/88					
ANNOTATED BIBLIOGRAPHY OF HYPERBARIC OXYGEN THERAPY						
			10-NO HUMAN SUBJECTS INVOLVED. 10-NO LIVE VERTEBRATE ANIMALS INVOLVED.			
1 R01 LM04925-01	IRG: BLR 89	01	113,406	APP	113,406	131
ROSSE, CORNELIUS		02	120,210		120,210	
UNIVERSITY OF WASHINGTON		03	127,432		127,432	
SEATTLE	WASHINGTON 07/01/88	04	135,068		135,068	3.2
		05	143,172		143,172	
IMAGE-BASED KNOWLEDGE SYSTEM IN ANATOMY						
			10-NO HUMAN SUBJECTS INVOLVED. 10-NO LIVE VERTEBRATE ANIMALS INVOLVED.			
1 R01 LM04938-01	IRG: SSS 89	01	15,000	APP	15,000	154
MICALE, MARK S						
INDIVIDUAL AWARD--MICALE, MARK S.						
CAMBRIDGE	MASSACHUSETTS 12/01/88					
HENRI ELLENBERGER, ESSAYS IN THE HISTORY OF PSYCHIATRY						
			10-NO HUMAN SUBJECTS INVOLVED. 10-NO LIVE VERTEBRATE ANIMALS INVOLVED.			
81 R01 LM04942-01	IRG: BLR 89	01	153,186	APP	153,186	423
MARKS, ELLEN B		02	134,005		134,005	
UNIVERSITY OF CINCINNATI MEDICAL CENTER						
CINCINNATI	OHIO 07/01/88					
ROLES OF INTEGRATED INFORMATION IN THE UCMC AIDS EFFORT						
			30-HS INV.-CERTIFIED, NO IRG CONCERNS/COMMENTS. 10-NO LIVE VERTEBRATE ANIMALS INVOLVED.			

1 R01 LM04943-01	DUAL: HD IRG: MEUB 89 01	24,933	APP	24,933	474
GRABER, BENJAMIN		24,892		24,892	
UNIVERSITY OF NEBRASKA MEDICAL CENTER					
OMAHA	12/01/88				
THE CLOACAL NERVE HYPOTHESIS					10-NO HUMAN SUBJECTS INVOLVED.
					10-NO LIVE VERTEBRATE ANIMALS INVOLVED.
1 R01 LM04950-01	IRG: BLR 89 01	23,440	APP	23,440	213
MADON, MINOO B					
SOCIETY OF VECTOR ECOLOGISTS					
SANTA ANA	12/01/88				
SIMULIIDAE 1960 - 1985: A QUARTER CENTURY OF PROGRESS					10-NO HUMAN SUBJECTS INVOLVED.
					10-NO LIVE VERTEBRATE ANIMALS INVOLVED.
1 R01 LM04980-01	IRG: SSS 89 01	16,097	APP	16,097	134
MORE, ELLEN S		14,856		14,856	
THE UNIV OF TEXAS MED BRANCH					
GALVESTON TX	12/01/88				
WOMEN PHYSICIANS & PROFESSIONAL CHANGE, 1880-1940					10-NO HUMAN SUBJECTS INVOLVED.
					10-NO LIVE VERTEBRATE ANIMALS INVOLVED.
1 R01 LM04983-01	IRG: SSS 89 01	27,941	APP	27,941	250
ALLEN, GARLAND E		17,091		17,091	
WASHINGTON UNIVERSITY					
ST LOUIS	07/01/88				
HISTORY OF HEREDITY, DEVELOPMENT AND EVOLUTION					10-NO HUMAN SUBJECTS INVOLVED.
					10-NO LIVE VERTEBRATE ANIMALS INVOLVED.
1 R01 LM04987-01	IRG: BLR 89 01	144,731	APP	144,731	323
KUIPERS, BENJAMIN J		134,302		134,302	
THE UNIVERSITY OF TEXAS		139,673		139,673	
AUSTIN	12/01/88				
DIAGNOSIS WITH QUALITATIVE & SEMI-QUANTITATIVE MODELS					E5-HS INV.-EXEMPTION 05 DESIGNATED.
					10-NO LIVE VERTEBRATE ANIMALS INVOLVED.
1 R01 LM04993-01	DUAL: CA IRG: BLR 89 01	255,287	APP	255,287	415
BUZZARD, I MARILYN		230,516		230,516	
UNIVERSITY OF MINNESOTA		197,834		197,834	
ST PAUL MN	11/30/88	204,850		204,850	95.1
USE OF EXPERT SYSTEMS IN MANAGING DIETARY DATA ANALYSIS		178,288		178,288	
					E3-HS INV.-EXEMPTION 03 DESIGNATED.
					10-NO LIVE VERTEBRATE ANIMALS INVOLVED.
1 R01 LM04996-01	IRG: BLR 89 01	24,970	APP	24,970	132
HOOK, ERNEST B		24,950		24,950	
WESTERN CONSORTIUM FOR PUBLIC HEALTH					
BERKELEY CALIFORNIA	12/01/88				
BOOK ON EPIDEMIOLOGY OF HUMAN CHROMOSOME ABNORMALITIES					10-NO HUMAN SUBJECTS INVOLVED.
					10-NO LIVE VERTEBRATE ANIMALS INVOLVED.
1 R01 LM04998-01	IRG: SSS 89 01	40,875	APP	25,257	320
WEISE, MICHAEL J		41,101		25,482	
MEDICAL UNIVERSITY OF SOUTH CAROLINA		41,201			
CHARLESTON SOUTH CAROLINA	12/01/88				
INFORMATION MANAGEMENT FOR SEQUENCE SIMILARITY DATA					10-NO HUMAN SUBJECTS INVOLVED.
					10-NO LIVE VERTEBRATE ANIMALS INVOLVED.

1 R01 LM05000-01  
 SCHWARTZ, THEODORE B  
 UNIVERSITY OF WASHINGTON  
 SEATTLE WA  
 IRG: SSS 89 01 02 03  
 12/01/88  
 FULLER ALBRIGHT: THE COMPLETE CLINICAL INVESTIGATOR

9,000 APP 9,000 202  
 7,980 7,980  
 7,980 7,980

E3-HS INV. - EXEMPTION 03 DESIGNATED.  
 10-NO LIVE VERTEBRATE ANIMALS INVOLVED.

1 R29 LM04986-01  
 SONNENBERG, FRANK A  
 NEW ENGLAND MEDICAL CENTER  
 BOSTON MASSACHUSETTS  
 DUAL: HL IRG: BLR 89 01 02 03 04 05  
 12/01/88  
 KNOWLEDGE BASED CONSTRUCTION OF DECISION TREES IN ANEMIA

84,755 APP 84,755 274  
 61,538 61,538  
 64,615 64,615  
 67,845 67,845  
 71,238 71,238

10-NO HUMAN SUBJECTS INVOLVED.  
 10-NO LIVE VERTEBRATE ANIMALS INVOLVED.

RESUME OF COUNCIL RECOMMENDATIONS  
(PRIVILEGED COMMUNICATION)

COUNCIL DATE: SEPT./OCT. 1988  
COUNCIL RECOMMENDATION PRIORITY

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

APPLICATION, INVESTIGATOR & ORGANIZATION    FY    YEAR    REQUESTED    ACTION AMOUNTS    PERCENTILE    ACTION AMOUNTS    NOTATION

IRG RECOMMENDATION PRIORITY	IRG RECOMMENDATION PRIORITY	IRG RECOMMENDATION PRIORITY
1 R01 HS06125-01	DUAL: LM IRG: HCT	89 01 140,381 APP 140,381 339
MCNUTT, ROBERT A		150,596 150,596
UNIVERSITY OF NORTH CAROLINA		149,307 149,307
CHAPEL HILL NC	01/01/89	

VISUAL CUES AND PHYSICIANS JUDGEMENTS IN HEART DISEASE  
30-HS INV -CERTIFIED, NO IRG CONCERNS/COMMENTS.  
10-NO LIVE VERTEBRATE ANIMALS INVOLVED.



RESUME OF COUNCIL RECOMMENDATIONS, BY PROGRAM  
(PRIVILEGED COMMUNICATION)

COUNCIL DATE: SEPT./OCT. 1988  
COUNCIL RECOMMENDATION  
PRIORITY

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

IRG RECOMMENDATION PRIORITY

PERCENTILE ACTION AMOUNTS ACTION AMOUNTS NOTATION

APPLICATION, APPLICANT & ORGANIZATION	FY	YEAR	REQUESTED	ACTION AMOUNTS	PERCENTILE	ACTION AMOUNTS	NOTATION
1 K04 LM00091-01A1	89	01A1	47,600	47,600	APP	47,600	307
SAFRAN, CHARLES		02	47,600	47,600		47,600	
BETH ISRAEL HOSP (BOSTON)		03	47,600	47,600		47,600	
BOSTON		04	47,600	47,600		47,600	
10-NO HUMAN SUBJECTS INVOLVED.		05	47,600	47,600		47,600	
10-NO LIVE VERTEBRATE ANIMALS INVOLVED.							