

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

A G E N D A

90th Meeting of the

BOARD OF REGENTS

9:00 a.m., January 26-27, 1989

Board Room  
Mezzanine of  
National Library of Medicine

MEETING OPEN: All day on January 26 and from 9:00 a.m. to 11:00 a.m. on January 27.  
MEETING CLOSED: From 11:00 a.m. to adjournment on January 27 for the review of grant applications.

- I. CALL TO ORDER AND INTRODUCTORY REMARKS Dr. Ann K. Randall
- II. REMARKS BY THE DEPUTY SURGEON GENERAL, PHS Dr. Faye G. Abdellah
- III. REMARKS BY THE DIRECTOR, NIH Dr. James B. Wyngaarden
- IV. CONSIDERATION OF OCTOBER MINUTES TAB I Dr. Ann K. Randall  
(Agenda Book)
- V. FUTURE MEETING DATES
- Spring Meeting: June 1-2, 1989 (Th-F)--CONFIRMED  
Fall Meeting: October 5-6, 1989 (Th-F)--CONFIRMED  
Winter Meeting: Jan. 25-26 OR Feb. 1-2, 1990 (Th-F)--PROPOSED
- PLEASE NOTE: AAAS Annual Mtg., 2/12-16/90,  
(Potential Conflicts New Orleans  
with Winter 1990 Dates) ALA Midwinter Mtg., 1/13-18/90,  
Chicago  
NIAID Council Mtg., 1/18-19/90,  
Bethesda
- COFFEE BREAK
- VI. REMARKS BY THE DIRECTOR, NLM TAB II Dr. Donald A. B. Lindberg  
Discussion Board Members

VII. IAIMS PROGRAM TAB III Dr. John F. Sherman  
Dr. Edward H. Shortliffe  
Dr. Walter B. Panko

Discussion Board Members

LUNCHEON CATERED IN CONFERENCE ROOM "B" 12:00-1:00

VIII. REPORT ON OUTREACH PLANNING MEETINGS TAB IV Dr. Elliot Siegel  
Dr. Lois E. DeBakey and  
Ms. Karen Renninger,  
Discussants

Discussion Board Members

IX. DOCLINE STATUS TAB V Mrs. Lois Ann Colaianni  
Ms. Eve Marie Lacroix

Discussion Board Members

COFFEE BREAK

X. AIDS INFORMATION SERVICE TAB VI Dr. Henry Kissman  
Mrs. Lois Ann Colaianni

Discussion Board Members

XI. GRATEFUL MED VERSION 4.0 TAB VII Mr. John Anderson

Discussion Board Members

XII. APPOINTMENT OF NOMINATING COMMITTEE Dr. Ann K. Randall

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

DINNER. . . . . Bethesda Naval Officers' Club  
Cocktails. . . . . 6:30 p.m. 8901 Wisconsin Avenue  
Dinner . . . . . 7:30 p.m. Bethesda, MD

SPEAKER: Barbara Culliton -  
News Editor of SCIENCE Magazine

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R E C O N V E N E: Friday, January 27, 9:00 a.m.

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XIII. ORGANIZATION AND RESEARCH PLAN OF NATIONAL CENTER FOR BIOTECHNOLOGY INFORMATION TAB VIII Dr. Daniel R. Masys  
 Dr. Donald W. King  
 Dr. Edward A. Feigenbaum,  
 Discussant

Discussion

Board Members

XIV. REPORT OF THE ACTING ASSOCIATE DIRECTOR FOR EXTRAMURAL PROGRAMS TAB IX Mr. Arthur J. Broering  
 EP Subcommittee,  
 Discussants

- A. Budget and Funding Plans Tab A
- B. Resource Grants Program Modifications Tab B
- C. Review of Board Operating Procedures  
 "Guidelines for Adjustments by Staff  
 in Time or Amount of Grant Award" Tab C

Discussion

Board Members

COFFEE BREAK

MEETING CLOSED FOR THE REVIEW OF GRANT APPLICATIONS, 11:00 A.M. TO 11:30 A.M.

XV. REVIEW OF GRANT APPLICATIONS Dr. Roger W. Dahlen

Research	(Workbook) <u>TAB I</u>	
A. Over \$100,000	<u>Tab A</u>	
B. Other	<u>Tab B</u>	
Resource Projects	<u>TAB II</u>	
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 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
AREA	<u>TAB VIII</u>	Dr. Roger W. Dahlen

XVI. ADJOURNMENT Dr. Ann K. Randall

DEPARTMENT OF HEALTH AND HUMAN SERVICES

NATIONAL INSTITUTES OF HEALTH  
NATIONAL LIBRARY OF MEDICINE

BOARD OF REGENTS  
MINUTES OF THE 90TH MEETING  
JANUARY 26-27, 1989

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 26-27, 1989

The Board of Regents of the National Library of Medicine was convened for its ninety meeting at 9:00 a.m. on Thursday, January 26, 1989, in the Board Room of the National Library of Medicine, Bethesda, Maryland. Dr. Ann K. Randall of the City College of CUNY chaired the meeting. In accordance with P.L. 92-463 and the Determination of the Director, NIH, as announced in the Federal Register on January 6, 1989, the meeting was open to the public from 9:00 a.m. to 4:50 p.m. on January 26 and from 9:00 to 10:45 a.m. on January 27. The meeting was closed from 9:50 to adjournment at 10:45 a.m. on January 27 for the review, discussion, and evaluation of grant applications. A Board roster is enclosed under Attachment A.

**Board members present were:**

Dr. Mary E. Clutter (January 26)  
Dr. Edward A. Feigenbaum  
Mr. Joseph H. Howard  
Ms. Nina W. Matheson  
Ms. Ann K. Randall  
Dr. Jay P. Sanford (January 25)  
Dr. Alvy R. Smith

**Alternates to ex officio members present were:**

Dr. Faye G. Abdellah, representing Dr. C. Everett Koop.  
Dr. Charles N. Brownstein, representing Dr. Mary E. Clutter (January 27).  
Brig. Gen. Stephen Shapiro, representing Lt. Gen. Monte B. Miller.  
Col. Howard E. Fauver, representing Lt. Gen. Frank F. Ledford, Jr.  
Capt. Vernon D. Schinski, representing Vice Admiral James A. Zimble.  
Ms. Karen Renninger, representing Dr. John Gronvall.  
Mr. Donald C. Curran, representing Dr. James H. Billington (January 26).

**Unable to Attend:**

Dr. Steven C. Beering  
Dr. Edward N. Brandt, Jr.  
Dr. Ronald E. Cape  
Mr. H. Robert Cathcart  
Dr. Don E. Detmer

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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 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, LHNCBC  
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, LHNCBC  
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, LHNCBC  
Dr. Henry M. Kissman, Associate Director for Specialized Information Services  
Mr. Sheldon Kotzin, Chief, Bibliographic Services Division, LO  
Ms. Eve Marie Lacroix, Chief, Public 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  
Ms. Peri L. Schuyler, Deputy Chief, Bibliographic Services Division, LO  
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. James B. Wyngaarden, Director, NIH  
Dr. Marion Ball, University of Maryland at Baltimore  
Ms. Judy Douglas, University of Maryland at Baltimore  
Ms. Karen Hackleman, University of Maryland at Baltimore  
Dr. David J. Lipman, Research Scientist, Mathematical Research Branch,  
NIDDK, NIH  
Ms. Kristin Olsen, Program Analyst, Division of Legislative Analysis, NIH  
Dr. Walter B. Panko, Sr. Scientist, Bolt, Beranek, and Newman Labs  
Dr. John F. Sherman, Exec. Vice President, AAMC  
Dr. Edward H. Shortliffe, Associate Professor of Medicine and Computer  
Science, Stanford University  
Ms. Lisa White, Reporter, Blue Sheet

## **I. OPENING REMARKS**

Dr. Ann K. Randall chaired the ninetieth meeting of the Board of Regents of the National Library of Medicine. She substituted for Board Chairman Dr. Edward N. Brandt, Jr., who was unable to attend. Dr. Randall welcomed a new appointed Regent, Dr. Alvy R. Smith, new ex officio members Brig. Gen. Bernard Shapiro, USAF, and Dr. Mary E. Clutter, National Science Foundation, and she noted that another new appointed Regent, Dr. Ronald E. Cape, was unable to attend. She also welcomed guests: Dr. John Sherman, Executive Vice President of the Association of American Medical Schools, Dr. Edward Shortliffe of Stanford University, and Dr. Walter Panko of Bolt, Beranek, and Newman Laboratories.

## **II. REMARKS OF THE DEPUTY SURGEON GENERAL, PHS**

Dr. Faye Abdellah reported to the Board about several recent and upcoming controversial reports to come out of the Public Health Service. First, on the 25th anniversary of the report on smoking and health, it is dismaying to note that there are still 400,000 Americans dying each year from smoking-related diseases and that the rates of such diseases for women have increased in recent years. Second, the Surgeon General will be issuing this May a report about pediatric AIDS that, among other things, will say that AIDS is now the fifth leading cause of death among infants. There are now 20,000 cases of pediatric AIDS and the cost of caring for one case can vary from \$9,000 to \$40,000. Another controversial report that Dr. Koop recently released was on abortion; the study was not able to document deleterious physical or mental effects on women undergoing abortion. The December 1988 Surgeon General's workshop on drunk driving was also the subject of considerable controversy; various beer companies boycotted the meeting, Dr. Abdellah said. A report from the workshop will be available in April. She invited the Regents to view an exhibit in the Library's main lobby on the centennial observance of the founding of the Commissioned Corps of the Public Health Service. Finally, Dr. Abdellah showed a 60-second videotape of a public service announcement about Dr. Joseph Goldberger and the conquest of pellagra, the first of a series of five or six such announcements recognizing heroes and heroines of the PHS over the last century.

## **III. REPORT OF THE DIRECTOR, NIH**

Dr. James Wyngaarden made brief comments about the 1990 NIH budget. No advance word of specific modifications on the proposed budget that might be made by the new Administration has been received. The 1990 budget request for AIDS-related activities contains a 24 percent increase over the 1989 budget; these funds are in the PHS--not the individual agencies. NIH's "non-AIDS" budget is slated for an increase of about three percent. In general, Dr. Wyngaarden said, the request in the

President's budget (excluding AIDS) is about at the same rate of growth as in recent years. For NLM, he said, the 1990 request reflects an increase of about \$4.5 million. Last year NIH decided to increase the training stipend for the first time in four years, from \$6,500 to \$8,500 for predoctoral students, and by about \$1,000 for postdoctoral programs. NIH still lags behind many other Federal programs in its support. If NIH succeeds in its proposal, it will be able to fund 10,896 trainees--still about 450 fewer than last year. It will also mean a reduction of about 20 in new and competing research grants funded (of the total 5,300). The whole issue of training will be a "lively" one during the hearings this year, he said. Dr. Wyngaarden reported on several recent organizational issues. A new NIH Institute on Deafness and Other Communication Disorders has been created by the Congress. Some \$90 million in current programs are being transferred from NIH's National Institute of Neurological and Communicative Disorders and Stroke (NINCDS) to the new institute; Congress appropriated \$3 million to cover administrative costs. Unfortunately, there were no new Full-Time Equivalent (FTE) staff positions authorized. He also described plans to merge several overlapping programs in the area of research resources, thus saving a number of FTEs. A committee has been convened to review a number of related programs in the Division of Research Resources and other NIH organizations and to make recommendations for an organizational realignment. The committee's report has just been received and no decisions have yet been made. One important recommendation has to do with the centralization of all NIH minority activities.

The last subject reported by Dr. Wyngaarden was that of issues involving scientific integrity. There were Congressional hearings on the subject last year (about which he previously reported to the Regents). He discussed briefly some of the individual issues: conflict of interest, such as the propriety of extramural grantees who participate in clinical trials holding stock or being consultants to companies whose products were being tested; similar potential conflict-of-interest questions about NIH intramural scientists who enter into cooperative agreements with companies; and the larger issue of fraud or serious misconduct in science. One proposal is to establish within the HHS Office of the Secretary an Office of Scientific Integrity. NIH's position has been that such matters should first be dealt with at the university level and that if Federal involvement is required, the initial inquiry should be at the level of the funding science agency. If additional review is required at the HHS Inspector General's level, the investigative responsibility should be retained at NIH. The adjudicative function--to disbar someone from receiving funding, for instance--is already at the Secretary's level.

Following Dr. Wyngaarden's presentation, Dr. Feigenbaum said he believes that, when considering the change in the institutional status of the Division of Research Resources, that organization's medical informatics and molecular biology computational activities should be prime candidates for transfer to the NLM. The committee that studied DRR's functions made no clear-cut recommendations about these activities. Dr. Feigenbaum said there were several reasons for his suggestion that NLM be the home for these programs: the NLM Director is thoroughly knowledgeable about the application of computer science to medicine; he is the founding president of the new American Medical



Informatics Association. Moreover, within the Lister Hill Center are a number of nationally recognized scientists in medical informatics. Dr. Wyngaarden said that it would be helpful if Dr. Feigenbaum would put his suggestions in writing.

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

The Regents approved without change the minutes of the October 6-7, 1988, meeting.

#### **V. DATES OF FUTURE MEETINGS**

The Board will meet next on June 6-7, 1989. This is a change from the date previously set. The fall meeting was confirmed for October 5-6, 1989. The meeting for next winter was tentatively set for January 18-19, 1990. (It has been confirmed by a mail poll.)

#### **VI. REPORT OF THE NLM DIRECTOR**

Dr. Donald A. B. Lindberg reported briefly on how the proposed 1990 budget increase of \$4 million (to a total of \$78 million) would be apportioned among the Library's programs. It is proposed that the new National Center for Biotechnology Information be funded at \$8 million in 1989. Also, there is a proposal to fund separately NLM AIDS-related activities at a level of \$500,000. In the area of personnel, Dr. Lindberg noted that the Library (and NIH) has lost a significant number of positions in recent years: from 544 (when he came to NLM in 1984) to 499. This last figure was recently raised to 516, primarily as a result of FTEs assigned to the new National Center for Biotechnology Information and for AIDS activities. The NLM Director introduced several new staff members: Ms. Lou Knecht, Deputy Chief of the Bibliographic Services Division; Ms. Peri Schuyler, Head of the Medical Subject Headings Section; Dr. James Ostell, Scientist, National Center for Biotechnology Information; and the just-named Director of the new Biotechnology Center, Dr. David Lipman. He gave a special thanks to Dr. Daniel Masys, LHC Director, who guided the NLM's biotechnology information activities in recent years and who helped bring about the establishment of the Center.

Dr. Lindberg summarized the provisions pertinent to NLM in the Omnibus Health Act (P.L. 100-607), signed into law last November. That law created the National Center for Biotechnology Information, a two-year extension of the Medical Library Assistance Act, and gave the NLM responsibility to work with other Federal agencies to create an international AIDS information resource.

Following Dr. Lindberg's presentation, there was a general discussion about the medical informatics-related programs of the Division of Research Resources (DRR). Capt. Schinski, who had served on the National Institute of General Medical Sciences (NIGMS) Advisory Council, said that there was a natural division between those medical informatics activities and the Division's other responsibilities. He believes that the former could logically be assigned to the NLM.

Dr. Abdellah said that she and Dr. Koop also support the integration of these activities into the Library. They would fare much better at NLM than under NIGMS, she added. After discussion, Dr. Feigenbaum was asked to draft a resolution expressing the view of the Board in this matter. [Note: Later in the meeting his resolution was introduced, amended, and passed. See Appendix B.]

## VII. THE IAIMS PROGRAM

Dr. John F. Sherman, Executive Vice President of the Association of American Medical Schools, chaired an ad hoc group of the Biomedical Library Review Committee last year to evaluate four applications for Phase III IAIMS implementation funding. As a result of their evaluation, this group of seven members (and two observers) prepared a report for the Board of Regents. Dr. Sherman, Dr. Walter B. Panko and Dr. Edward H. Shortliffe shared with the Board their observations about the prospects for IAIMS (Integrated Academic Information Management Systems).

Dr. Sherman described in general terms the background leading up to the report. The committee identified five key elements in successful IAIMS projects: the presence of a productive and influential program in medical informatics within the institution, dedicated leadership at the highest levels within the institution, a well-prepared plan, adequate resources--people and equipment, and the need for patience and persistence on the part of all involved. Among the important results noted by the group were: an effective and efficient use of institutional computing and communication resources, a remarkable convergence of individual and institutional interests and activities, and an opportunity to stimulate the institution's medical library as an important force in IAIMS activity. Finally, Dr. Sherman spoke about the importance of the NLM as an IAIMS catalyst--for disseminating the concept, providing seed money, and for fostering communication and sharing the experiences of IAIMS institutions.

Dr. Panko said that the Committee felt strongly that there should be diversity among IAIMS institutions; there is no one right solution or approach to IAIMS. However, there was one common theme among the successful IAIMS projects the group investigated: networking. Not only networking within centers, but the eventual linking together of different IAIMS institutions. Such networking will accommodate the great heterogeneity of today's users and systems. It will also promote generic building blocks, or "object-oriented programming." The vast majority of IAIMS functions already exist or are on the drawing board, Dr. Panko said, and need only to be assembled. He believes that IAIMS solutions will come not only from academic centers and medical informatics departments, but from the marketplace. Before the commercial sector can respond, however, the problems that IAIMS is to address must be better defined. Finally, Dr. Panko said that it is important that the IAIMS effort--and the resources expended on it--not dilute the medical informatics effort and vice versa. The appropriate role for the medical informatician in the IAIMS process is in defining standards and creating the generic building blocks. The medical informatician has a strong disciplinary focus; the IAIMS builder must have a wider outlook.

Using a PC and videoprojector, Dr. Shortliffe demonstrated how an IAIMS might work. He showed how, in a hypothetical "physician's office" that was interconnected via a local area network, a physician could access various information sources--whether in the office, the laboratory, on the hospital ward, at home, etc. The simulated system he demonstrated has been designed to minimize any use of a keyboard. Dr. Shortliffe showed how the user would access electronic mail and messages, outpatient data, laboratory test results, data and actual images from the radiology department (for example), complete patient records including history and progress notes, insurance data, referring M.D.'s, a photograph of the patient (perhaps), medical literature via online searches, tumor and other databanks at different institutions, and so forth. Increasingly, there are shared national medical databanks around the country, Dr. Shortliffe said, citing several. Access to such a great variety of information--on local, state, regional, and national systems--would require that IAIMS include gateways among disparate systems. Any of this information should be available by "a single click" at a workstation, with no concern about different log-in protocols, telephone numbers, etc.

Following Dr. Shortliffe's presentation, there was a general discussion about how to encourage IAIMS development around the country. The experiences of two successful prototypes--Columbia and Georgetown--need to be disseminated to others as models. The recommendations in the panel's report, Dr. Sherman said, are deliberately stated in broad terms to allow flexibility in appraisal and decision-making in how to further implement the concept. Dr. Lindberg talked about the limited NLM funds available for further support of demonstrations. Ms. Matheson noted that the medical and academic library community has been seeking additional funding for IAIMS.

[Note: Later in the meeting a resolution on IAIMS was introduced, discussed, and passed. See Appendix C.]

## **VIII. REPORT ON OUTREACH PLANNING MEETINGS**

Dr. Elliot R. Siegel, NLM Assistant Director for Planning and Evaluation, reported on the plan to update the Long-Range Plan in three areas: outreach, electronic image libraries, and the training of medical librarians. A planning panel on outreach was created last year and has held two of three planned meetings. The committee has 30 appointed members and one consultant; Dr. Michael DeBakey is chairman. Dr. Siegel briefly described the first two meetings. The first meeting (October 1988) was largely devoted to briefings about the present products and services of the Library. Two working groups were formed--one to deal with the problem of how to increase awareness and use of NLM services within the health professional community, and one to consider how to obtain feedback from these services, how they are used and how they can be improved. At the second meeting in January, the full panel reviewed the reports of the two working groups. Among the conclusions of this review: (1) More data are needed about the information needs of health professionals, especially in rural and other underserved settings; and (2) the practicing health professional in the field is the primary target audience for NLM outreach activity (the panel proposed many strategies for reaching this audience). At

the second meeting, the panel again appointed two working groups, one to propose new NLM information products and services and to suggest improvements to existing products and services, and the second to clarify the role of the Regional Medical Libraries (RML) in outreach. Dr. Siegel briefly described some of the tentative suggestions that came out of the two groups. At the last meeting of the panel, in early March, the group will hear a report on marketing and then consider its final report to the Board of Regents.

Following Dr. Siegel's presentation, Board member Karen Renninger described her presentation to the planning panel about the expectations of the Regents. In plain terms, she told the panel that the Board wants a dynamic, evolving plan to respond to the mandate of the Congress that the NLM engage in outreach activities. She also reported on the discussions of the working group, set up to consider the Regional Medical Library program, on which she sat. A central theme of these discussions was how to improve the provision of documents (e.g., journal articles) to users of NLM's online bibliographic services. Another theme was how to convert the RML Network to an "NLM marketing field force."

## **IX. DOCLINE STATUS**

Mrs. Lois Ann Colaianni, NLM Associate Director for Library Operations, gave a brief history of the Library's involvement in lending the medical literature to health professionals. Interlibrary loan from its immense collection continues to be an important service provided by the NLM. After this introduction, Ms. Eve Marie Lacroix, Chief of the Public Services Division, demonstrated to the Regents NLM's DOCLINE--an automated interlibrary loan request and referral system that was implemented beginning in May 1985. It was built in cooperation with the libraries in the Regional Medical Library Network. DOCLINE provides access not only to NLM's collection, but the collections of participating DOCLINE libraries. The NLM computers contain holdings information for some 35,000 serial titles held by 2,650 libraries across the country. About 1700 libraries are actually using the system now, with more coming online each month. The system, designed to handle the two million interlibrary loan transactions each year, handled 1.3 million requests in FY 1988 at a 93 percent fill rate. Ms. Lacroix showed a brief videotape that explained how DOCLINE works and then, using slides, she described how the routing and other modules work. Mr. James Cain, Chief of the Audiovisual Program Development Branch, then did a live demonstration of DOCLINE. After the demonstration, Ms. Lacroix compared the DOCLINE automated system with the traditional, more time-consuming and less certain interlibrary loan procedures. Not only is the system speedier, but DOCLINE's automated record-keeping provides management with much more complete and timely statistics.

Wrapping up the DOCLINE presentation, Mrs. Colaianni spoke briefly about future plans for DOCLINE: (1) NLM plans soon to approach the 1,085 libraries that are not yet DOCLINE users, that have their serial holdings in NLM's computer; (2) NLM plans to add other major resources to the system (such as the American Hospital Association); (3) in the longer range the Library plans to work toward electronic connections

with some of the non-U.S. MEDLARS centers and other international resources; and (4) NLM plans to develop a way for individual health professionals who search MEDLINE via Grateful Med to request the actual documents via a DOCLINE link. Expanding on the last item, Mrs. Colaianni said that NLM is planning a connection between Grateful Med and a document delivery system. The Region 7 RML (UCLA) has been asked to look at the management issues involved in building such a system. Their preliminary report has identified three issues: how to accommodate the user who is not affiliated with an institution, how billing and payment would be handled, and how such a system should be marketed to the health professions. NLM is working toward having a prototype of such a system for testing early in 1990.

## X. AIDS INFORMATION SERVICE

Dr. Henry Kissman, NLM Associate Director for Specialized Information Services, presented a brief overview of current NLM activities related to AIDS information. Recent legislation directs the HHS Secretary to be responsible for ensuring that technical information on AIDS is available through a telephone information service to health care professionals and to develop databanks of AIDS-related research and information about clinical trials on the treatment of AIDS. NLM is identified in the legislation as having a major role in creating, maintaining, and making available the research-related databases. NLM in recent years has been preparing specialized bibliographies on AIDS and, in 1988, created and made available an online MEDLARS database, known as AIDSLINE. In addition, NLM's DIRLINE database lists some 300 national organizations that dispense AIDS information. Although the NLM is not specifically cited as having a role in the clinical trials databank, the Library has offered its services to and has met with the staff of the National Institute of Allergy and Infectious Diseases (NIAID), the lead agency at NIH in this endeavor. Dr. Kissman said that the NLM would find it helpful to have an advisory group on AIDS-related information matters; one possibility is a subcommittee of the NIH AIDS Advisory Committee.

Following Dr. Kissman's presentation, Mrs. Colaianni described how the Library has provided access to the AIDS-related literature through printed and machine-readable bibliographies. A series of printed Literature Searches on AIDS has been provided by the Library staff since 1983. This was replaced in 1988 by a quarterly publication available on subscription from the Government Printing Office. Beginning in January 1989, this has become a monthly publication. NLM's online database, AIDSLINE, which became available last summer, contains some 15,000 references (1980 to present, 40 percent with abstracts) covering the clinical and research aspects of the disease, epidemiology, and health policy issues. It is the sixth most heavily used NLM database, with about 1200 searches per month. NLM is expanding the coverage of AIDSLINE, not only with more source journals, but with other forms of information: monographs, audiovisuals, and meeting abstracts. Pertinent information will also be phased into AIDSLINE from other MEDLARS databases--HEALTH PLANNING AND ADMINISTRATION, CANCERLIT, BIOETHICS, and POPLINE. In addition to expanding the coverage of AIDS-related information, NLM staff is also ensuring that the Medical Subject Headings pertinent to the subject are being kept current.

## **XI. GRATEFUL MED, VERSION 4.0**

Mr. John Anderson, Director of Information Services, reported that the latest version of Grateful Med 4.0, has been released and 13,000 copies are now in the hands of users around the country. The National Technical Information Service continues to sell the software (two 5.25-inch diskettes, one 3.5-inch hard diskette, and user's manual) for \$29.95. Grateful Med, which provides PC-based user-friendly access to the major NLM databases, has "gained control of the growth curve" on the NLM system, Mr. Anderson said. It now accounts for 42 percent of all users and 32 percent of all mainframe computer consumption for information retrieval. Perhaps the most startling statistic was that yesterday (January 25) 3,000 users logged onto and off of the NLM online system at least once--a new high. Following Mr. Anderson's presentation, Ms. Rose Marie Woodsmall conducted an online demonstration of Version 4.0 of Grateful Med, highlighting the improvements over previous versions. The enhancements fall into three categories: more powerful features (without detracting from user-friendliness), access to more NLM databases (including AIDSLINE), and better vocabulary (MeSH) guidance for users. She also briefly demonstrated a new PC-based Grateful Med tutorial.

Following the demonstration, Dr. Edward Feigenbaum inquired about the availability of a Macintosh version of Grateful Med. Ms. Woodsmall announced that a Mac version is now being prepared and will be released later this year. Dr. Feigenbaum also asked about a "very" Grateful Med, one with a "semantic network" that allows not just access via MeSH terms but that "knows" a bit about medicine and how those MeSH terms integrate to reflect a model of disease and of the human body. Then the system would proceed to "do what I mean, not what I say." Dr. Lindberg said that this capability is very closely allied to what is intended for the Unified Medical Language System. Dr. Schoolman commented that NLM is planning to incorporate MeSH subheadings into Grateful Med. Although this is a primitive phase of such a semantic network, it will be an enormous aid to increasing precision of Grateful Med retrieval.

## **XII. APPOINTMENT OF NOMINATING COMMITTEE**

Dr. Randall appointed a nominating committee for the selection of next year's chairman, consisting of Dr. Abdellah, Chair, Dr. Sanford and Col. Fauver.

## **XIII. NATIONAL CENTER FOR BIOTECHNOLOGY INFORMATION**

Dr. Daniel R. Masys, Director of the Lister Hill Center, reported that NLM is now moving into a new phase in biotechnology with the creation of the National Center for Biotechnology Information. He listed the provisions of the enabling legislation that call for the new Center to (1) create automated systems to handle knowledge concerning human molecular biology, biochemistry, and genetics; (2) do research into advanced methods of computer-based processing of biotechnology information; (3) enable those engaged in biotechnology research and

medical care to use the systems developed; and (4) coordinate efforts to collect biotechnology worldwide. This action by the Congress, Dr. Masys said, strengthens a number of ongoing NLM biotechnology-related projects. These activities fall into three categories: those that focus on building new databases and enhancing existing databases, those that seek to improve information retrieval and analysis from those databases, and "communication"--the sponsorship of meetings, workshops, tutorials, and lectures. Dr. Masys mentioned several specific projects within these categories.

In the area of building new databases, he described the enhancing of Medical Subject Headings by cross-linking to GenBank, mapping between MeSH and keywords of the Protein Identification Resource (PIR) database at Georgetown University, the assignment of new MEDLARS indexing terms for molecular sequence data and enhancing MEDLINE with a data field that contains pointers to other molecular biology databanks. Although NLM would like to have copies of every relevant databank running on its computers, this is becoming less and less feasible as they proliferate. As a substitute, NLM has developed an online directory of biotechnology information resources that is now being tested. A multi-agency project being led by NLM's Specialized Information Services is seeking to devise specifications for a biotechnology environmental release data system to serve as both a scientific and a regulatory reference source. In another project, NLM has created an online version of Dr. Victor McKusick's Mendelian Inheritance in Man. This is being expanded by the creation of a 20,000-image videodisk containing clinical and radiographic pictures from the text and from the Hopkins Genetic Clinic. NLM also provides funding for major databanks in biological research including GenBank and the PIR.

In the second category, improved methods of retrieval from databases, Dr. Masys said that the major intramural project over the last several years is Geninfo, a workstation-based database searching engine that has access to multiple molecular biology databases. He then showed a brief videotaped demonstration of Geninfo. One important project of the new Center will be to make this prototype system available at NIH molecular biology laboratories. Extramurally, the NLM has awarded \$1 million in grants for computational biology; a second round of grants for an additional \$1 million will soon be processed. Dr. Masys described the broad scope of these grants.

Under the third category, communications, is the sponsorship of next summer's "Macromolecules, Genes, and Computers" workshop and support for the upcoming Human Gene Mapping 10 workshop in June in New Haven. As has been previously reported to the Regents, there is a continuing Biotechnology Lecture Series in the Lister Hill Center. Some 15 of these talks by eminent scientists have been held so far; videotapes of the lectures are available from NLM and the Regional Medical Libraries.

Dr. Masys expressed his deep appreciation to Dr. Dennis Benson for being responsible for much of the day to day biotechnology-related activities over the last several years. Future reports to the Board about biotechnology information activities will be made by the newly-named Center Director, Dr. David Lipman.

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

##### Budget

Mr. Arthur J. Broering reviewed the FY 1989 Extramural Programs budget. He noted that it has been adjusted to show a ten percent reduction in the continuation awards, particularly for NLM's Medical Informatics Research Projects. This is the third consecutive year that a reduction has been necessary not only at NLM, but to a greater extent at other Institutes. The money available for new Medical Informatics Project grants is consequently doubled for FY 1989 to an estimated \$700,000. Under the IAIMS category, two competing PHASE III awards have been made to Georgetown and Columbia Universities. These awards depleted all available IAIMS funds for the current year and will likely result in funding only commitments in 1990, as far as can be determined at this early stage in the budget process. A suspension of new IAIMS grants has been announced, although the interest in the program continues to grow. In the Training Program area, consideration is being given to initiate a fellowship program to complement NLM's institutional awards for Medical Informatics Research Training. With the phasing down of one of the eight institutional awards this year, NLM is planning a public announcement within a few weeks, asking for Fellowship applications in May. It is anticipated that funds for four or five fellowship grants will be available in 1989. Although this is a small number, it is a beginning. In the field of molecular biology, Extramural Programs has received an additional one million dollars for Biotechnology Research Awards in 1989. A copy of the Request for Applications (RFA), which was mailed last November, was included in the agenda book. Mr. Broering noted, that judging from the Letters of Intent that were received in response to the RFA and some biotechnology applications already received, it appears that the applications in this category will be close to the number which was reviewed in 1988. At that time, an ad hoc review group evaluated the applications. However, a newly organized and expanded BLRC, with 21 members, will be able to handle biotechnology applications during the regular review cycle. At this time, staff is in the process of selecting an additional six members to serve on the expanded committee.

##### Modification of Resource Grants Program

Mr. Broering then drew attention to the documentation in the agenda book on the modification of the Resource Grants Program which was reviewed by the Board's Extramural Programs Subcommittee on Wednesday. The Subcommittee felt encouraged that these program changes should stimulate additional interest and that they would be consistent with the Long-Range Plan, as requested by the Board at its October meeting. Ms. Matheson introduced a motion of the Subcommittee for the Board's consideration: "Having considered the documentation for the modified Resource Grants Program's Criteria for Success and Relationship with the Long-Range Plan, the Extramural Programs Subcommittee moves full endorsement of the principles and recommends an early release of appropriate announcements to the NLM applicant community." The full Board unanimously moved to approve the modifications and the change proposed by the Subcommittee for positive communication to the applicant community.



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.

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MEETING CLOSED FOR THE REVIEW OF GRANT APPLICATIONS, JANUARY 27, 9:50 A.M.  
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**XV. 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 36 applications, requesting \$11,828,095 and recommended for approval 21 applications in the amount of \$4,119,157 for the total years requested. Twelve applications in the amount of \$2,917,847 were disapproved. Three applications in the amount of \$1,882,885 were deferred. 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 Subcommittee and noted and concurred with by the Board of Regents.

**XVI. ADJOURNMENT**

The meeting was adjourned at 10:35 a.m. on Friday, January 27, 1989.

\* \* \* \* \*

Wednesday, January 25, 1989, 1:00 to 2:40 p.m.  
(Extramural Programs Subcommittee--List of Attendees under Attachment E)  
Wednesday, January 25, 1989, 4:00 to 5:00 p.m.  
(Planning Subcommittee--List of Attendees under Attachment F)

Thursday and Friday, January 26 and 27, 1989  
(Full Board of Regents)

\* \* \* \* \*

ACTIONS TAKEN BY THE BOARD OF REGENTS

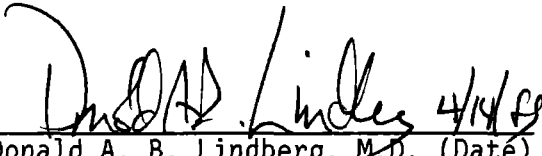
1. The Board passed a resolution urging the Director, NIH, to transfer to NLM from the Division of Research Resources the authority and funding for Computer Resources for biomedical research, core medical

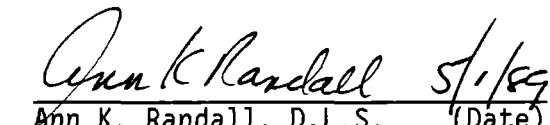
informatics research and biotechnology databases contained within DRR's Biomedical Research Technology Program (Attachment B).

2. The Board passed a resolution reaffirming its strong support for the IAIMS Program and suggesting that the Board's recommendations be considered for incorporation into NLM's Long-Range Plan (Attachment C).
3. The Chairman appointed a nominating committee for the selection of next year's Board Chairman, consisting of Dr. Abdellah, Chair, Dr. Sanford, and Col. Fauver.
4. The Board approved the modifications and change in the NLM Resource Grants Program, recommending an early release of appropriate announcements to the NLM applicant community.
5. The Board reaffirmed the Operating Procedures.
6. The Board concurred with the 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.

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

  
Ann K. Randall, D.L.S. (Date)  
Chairman

## BOARD OF REGENTS OF THE NATIONAL LIBRARY OF MEDICINE

## CHAIRMAN

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President

University of Maryland at Baltimore

520 West Lombard Street

Baltimore, MD 21201

301-328-7002**BEERING, Steven C., M.D. (8/3/91)**

President

Purdue University

West Lafayette, IN 47907

317-494-9708**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**CAPE, Ronald E., Ph.D. (8/3/92)**

Chairman

Cetus Corporation

1400 Fifty-Third Street

Emeryville, CA 94608

415-420-3300**MATHESON, Nina W. (8/3/90)**

Director

William H. Welch Medical Library

Johns Hopkins University

School of Medicine

1900 East Monument Street

Baltimore, MD 21205

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

President

Pennsylvania Hospital

Eighth and Spruce Streets

Philadelphia, PA 19107

215-829-3312**RANDALL, Ann K., D.L.S. (8/3/89)**

Professor and Chief Librarian

The City College of CUNY

5333 North Academic Center

138th Street and Convent Avenue

New York, NY 10031

212-690-4271**DETMER, Don E., M.D. (8/3/91)**

Vice President for Health Affairs

University of Virginia

Box 179, Medical Center

Charlottesville, VA 22908

804-924-2444**SMITH, Alvy R., Ph.D. (8/3/92)**

Executive Vice President

Pixar

3240 Kerner Boulevard

San Rafael, CA 94901

415-258-8122

## EX OFFICIO MEMBERS

## Primary

## Alternate

**BILLINGTON, James H., D.Phil.**

Librarian of Congress

Library of Congress

10 First Street, S.E.

Washington, DC 20540

202-707-5205

Board of Regents Roster (Continued)

**Primary**

**Alternate**

**CLUTTER, Mary E., Ph.D.**  
Actg. 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

**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

**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

**LEDFORD, Frank F., Jr., 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

**MILLER, Monte B., 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

**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

**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

ACTION OF THE NLM BOARD OF REGENTS, JANUARY 26, 1989

PREFACE TO THE RESOLUTION

The Board of Regents of the National Library of Medicine wishes to take a position on one of the questions considered by the DRR-DRS Reorganization Task Force. It does so by resolution below. The issue concerns which NIH organization(s) should administer the activities now known as Biomedical Research Technology Program (B RTP) in Division of Research Resources (DRR).

Those activities fall into the following categories:

- a) instrumentation and other direct laboratory resources, including core research
- b) Computer Resources for biomedical research
- c) biotechnology data bases
- d) core medical informatics (computer science) research

The two centers of excellence within the NIH for supporting medical informatics research have been B RTP and the NLM. The National Center for Biotechnology Information has recently been authorized within the NLM by Congress. NLM does not specialize in (a) above, and these are not included in this resolution.

We see an important confluence of events. First is the kind of realignment of institutional responsibility for the activities mentioned above that occurs very rarely. And second is the circumstance (perhaps a lucky accident, perhaps no accident at all) that the Director of the NLM is regarded by his scientific peers as one of the world's leading specialists in computers for medicine and medical research. The NLM, moreover, employs an eminent director of its National Center for Biotechnology Information, and a highly-regarded, technically powerful research staff for medical informatics and for biotechnology data bases at the Lister Hill Center.

We see therefore an historic opportunity to reposition responsibilities and people in a way that is essentially optimal as viewed from the national interest. It is an opportunity not to be missed and costless to implement. The Board of Regents, by resolution below, passed without dissent, urges the Director of NIH to seize the opportunity.

RESOLUTION

Resolved that the Board of Regents urges the Director of NIH to transfer to the NLM the authority and funding for Computer Resources for biomedical research, core medical informatics research and biotechnology data bases within the B RTP of DRR.

RESOLUTION

BOARD OF REGENTS OF THE NATIONAL LIBRARY OF MEDICINE

January 26, 1989

WHEREAS, the Board thanks Drs. Sherman, Panko and Shortliffe for their excellent report and recommendations,

BE IT RESOLVED that the Board reaffirms its strong support for the IAIMS program and suggests that these valuable recommendations be considered for incorporation into NLM's long-range plan.

APPLICATIONS APPROVED BY COUNCIL  
 (ARRANGED NUMERICALLY BY PROGRAM)  
 COUNCIL DATE: JAN/FEB 1989

1	G08	LM04893-01A1	PARFURST PERRIN E PHD ESTABLISHING AN INTERACTIVE LEARNING RESOURCE CENTER	01 02	\$139,713 \$70,725
1	G08	LM05012-01	AUSTIN JOHN E IAIMS PLANNING AT TUFTS UNIVERSITY	01 02	\$73,340 \$38,503
1	G08	LM0501E-01	LEZOTTE DENNIS C PHD INTEGRATED ACADEMIC INFORMATION MANAGEMENT (IAIMS) STRATEGIC PLANNING GRANT	01 02	\$208,339 \$212,122
1	G08	LM05022-01	WRIGHT BARBARA A FAYETTEVILLE AHEC AUDIOVISUAL RESOURCE PROJECT GRANT	01 02	\$102,748 \$35,850
1	G08	LM05032-01	MIECZKOWSKI LAWRENCE MD IAIMS PLANNING: AN INSTRUMENT OF CHANGE FOR MEDICAL EDUCATION	01 02	\$122,461 \$113,849

ITEMS RETRIEVED 5  
 ^Z

APPLICATIONS APPROVED BY COUNCIL  
 (ARRANGED NUMERICALLY BY PROGRAM)  
 COUNCIL DATE: JAN/FEB 1989

2	R01	LM04485-04A1	WOLF FREDRIC M PHD DIAGNOSTICITY, HEURISTICS, AND CLINICAL EVIDENCE	04A1 05 06 07 08	\$103,988 \$107,358 \$112,115 \$115,738 \$120,179
2	R01	LM04605-03	SIEVERT MARYELLEN PHD FULL-TEXT RETRIEVAL OF MEDICAL JOURNAL LITERATURE	03 04 05	\$93,097 \$90,095 \$89,744
1	R01	LM04686-01A1	MORANTZ-SANCHEZ R A PHD CONDUCT UNBECOMING OF A WOMAN: LIBEL TRAIL OF A WOMAN SURGEON	01A1	\$14,400
1	R01	LM04710-01A1	ROSS ELLEN PHD WIVES AND MOTHERS IN WORKING-CLASS LONDON 1870-1918	01A1	\$25,000
1	R01	LM04901-01A1	WEINER DORA B PHD PHILIPPE PINEL: CLINICIAN OF THE FRENCH REVOLUTION	01A1 02 03	\$22,600 \$24,957 \$23,827
1	R01	LM04949-01	LINDEMANN MARY E PHD MEDICINE, HEALTH, AND HEALING IN GERMANY, 1648-1820	01 02	\$20,603 \$8,865



1	R01	LM04951-01	BERNER ETA S EDD EVALUATION OF MEDICAL DECISION SUPPORT SOFTWARE	01 02 03 04 05	\$422,704 \$498,608 \$525,714 \$554,983 \$510,335
1	R01	LM05005-01	DANIELS NORMAN PHD JUSTICE AND AIDS POLICY	01 02 03	\$25,000 \$25,000 \$25,000
1	R01	LM05007-01	JAFFE CONRADE C MD INDEXING OF ELECTRONIC MEDICAL IMAGE DATABASES	01 02 03	\$119,147 \$127,488 \$136,414
1	R01	LM05013-01	WARNER JOHN H PHD AMERICAN PHYSICIANS AND FRENCH MEDICINE, 1815-1890	01 02	\$17,906 \$13,680
1	R01	LM05014-01	MARKS ELLEN B VIAIMS: A PATIENT-CENTERED APPROACH	01 02	\$151,750 \$147,553
1	R01	LM05017-01	MIKE VALERIE PHD UNCERTAINTY AND STATISTICAL EVIDENCE IN MODERN MEDICINE	01 02	\$24,986 \$24,980
1	R01	LM05023-01	BESSMAN JOEL D MD A SOFTWARE MODEL TO TEACH AND TEST A COGNITIVE SKILL	01 02 03 04	\$70,608 \$70,331 \$74,665 \$64,021

1	R01	LM05026-01	MEINERT CURTIS L PHD	01	\$250,000
			PROSPECTIVE REGISTRATION OF	02	\$250,000
			CLINICAL TRIALS	03	\$250,000

1	R01	LM05039-01	COWAN JAMES A MD	01	\$45,449
			EVALUATION OF ONLINE LITERATURE	02	\$30,452
			SEARCHING BY RESIDENTS		

1	R01	LM05041-01	WHITE DIANA L	01	\$71,945
			RISK OF SIDS FOR SUBSEQUENT	02	\$34,470
			SIBLINGS: WHAT DO WE KNOW?		

ITEMS RETRIEVED

16

APPLICATIONS APPROVED BY COUNCIL  
(ARRANGED NUMERICALLY BY PROGRAM)  
COUNCIL DATE: JAN/FEB 1989

1	R15	LM05028-01	RAJE RAVINDRA R PHD	01	\$25,927
			COMPUTER ASSISTED MEDICAL	02	\$20,537
			INFORMATION RESEARCH	03	\$23,296

ITEMS RETRIEVED 1

APPLICATIONS APPROVED BY COUNCIL  
(ARRANGED NUMERICALLY BY PROGRAM)  
COUNCIL DATE: JAN/FEB 1989

1	R29	LM05031-01	ALEMI FARROKH PHD	01	\$61,256
			AUTOMATED DETECTION OF POOR CARE	02	\$64,319
				03	\$67,535
				04	\$70,000
				05	\$70,000

ITEMS RETRIEVED 1

APPLICATIONS APPROVED BY COUNCIL  
(ARRANGED NUMERICALLY BY PROGRAM)  
COUNCIL DATE: JAN/FEB 1989

1	G07	LM03955-02S4	JOHNSON DONNA RESOURCE IMPROVEMENT GRANT APPLICATION	\$4,000
1	G07	LM05015-01	MORGAN LINDA M RESOURCE IMPROVEMENT GRANT APPLICATION	\$4,000
1	G07	LM05025-01	GARDNER KAREN S RESOURCE IMPROVEMENT GRANT APPLICATION	\$4,000
1	G07	LM05029-01	LEONE ROSEMARIE G RESOURCE IMPROVEMENT GRANT APPLICATION	\$4,000
1	G07	LM05036-01	TEOLIS MARILYN RESOURCE IMPROVEMENT GRANT APPLICATION	\$4,000

ITEMS RETRIEVED 5

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

EXTRAMURAL PROGRAMS SUBCOMMITTEE MEETING

January 25, 1989

1:00 to 2:40 p.m.

A T T E N D E E S

Subcommittee Members Present:

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

Unable to Attend:

Dr. Steven C. Beering  
Dr. Don E. Detmer

NLM Staff Present:

Mr. Arthur J. Broering, Acting Associate Director, 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. Andrea Epstein, Grants Assistant, 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

PLANNING SUBCOMMITTEE MEETING

January 25, 1989

4:00 to 5:00 p.m.

A T T E N D E E S

Subcommittee Members Present:

Ms. Nina Matheson  
Ms. Karen Renninger

NLM Staff Present:

Mr. Kent A. Smith, Deputy Director  
Dr. Elliot Siegel, Assistant Director for Planning and Evaluation  
Ms. Susan Buyer Slater, Deputy Assistant Director for Planning and Evaluation  
Mr. Robert Mehnert, Chief, Office of Inquiries and Publications Management

Summary of Minutes

Dr. Elliot Siegel briefly reviewed the progress of the NLM Outreach Planning Panel which met on November 21-22, 1988, and January 13-14, 1989. In December 1987, Congress amended NLM's mandate to include the provision that the Library publicize the availability of its information products and services to all health professionals in all settings. In October 1988, the Board of Regents appointed the Planning Panel on Outreach. The panel is chaired by Dr. Michael DeBakey and now numbers approximately 30 individuals prominent in all facets of the health professions, education, librarianship and the business community.

The first meeting was devoted to staff briefings on NLM products and services. This was followed by the formation of two working groups which addressed two first-cut issues:

- o How to create awareness and increased use of NLM's products and services among health professionals in rural, academic, and urban settings and among members of the media.
- o How to establish mechanisms to determine the utility of current products and services, and to expand them as appropriate.

The second meeting focused on:

- o New information products and services for the professional practice of medicine, and improvements to the existing ones, as may be necessary.

- o The Regional Medical Library Network and its role in outreach.

A special sub-group on marketing will be led by Mr. Jack Whitehead who will arrange for a market survey that will specifically address the issues of who are NLM's users and non-users; and what are the barriers to becoming users. This is seen as a necessary first step prior to launching any new marketing initiative.

The Subcommittee discussed the major issues raised by the Outreach Panel.



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

A G E N D A

91st Meeting of the

BOARD OF REGENTS

9:00 a.m., June 6-7, 1989

Board Room  
Mezzanine of  
National Library of Medicine

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

1. CALL TO ORDER AND INTRODUCTORY REMARKS Dr. Edward N. Brandt, Jr.
  
2. REMARKS BY THE DEPUTY DIRECTOR FOR INTRAMURAL RESEARCH, NIH Dr. Joseph E. Rall
  
3. REMARKS BY THE DEPUTY SURGEON GENERAL, PHS Dr. Faye G. Abdellah
  
4. CONSIDERATION OF JANUARY MINUTES TAB I Dr. Edward N. Brandt, Jr.  
(Agenda Book)
  
5. FUTURE MEETING DATES  
Fall Meeting: October 5-6, 1989 (Th-F)--CONFIRMED  
Winter Meeting: January 18-19, 1990 (Th-F)--CONFIRMED  
Spring Meeting: June 7-8, 1990 (Th-F)--PROPOSED  
  
PLEASE NOTE: MLA Annual Meeting 5/18-24/90,  
(Potential conflict Detroit  
w/Spring 1990 Dates.)  
  
COFFEE BREAK
  
6. REMARKS BY THE DIRECTOR, NLM TAB II Dr. Donald A. B. Lindberg  
Discussion Board Members
  
7. TOXIC RELEASE INVENTORY TAB III Mr. Bruno M. Vasta  
Discussion

LUNCHEON CATERED IN CONFERENCE ROOM "B"

(Show of NLM FRIENDS Public Service Announcement and Cable News Network NCBI Press Conf. tape.)

- 8. FINAL REPORT ON OUTREACH PANEL MEETINGS TAB IV Dr. Elliot R. Siegel  
(Board Action Necessary.) Ms. Karen Renninger and  
Dr. Lois E. DeBakey,  
Discussants  
  
Discussion Board Members
- 9. NATIONAL CENTER FOR BIOTECHNOLOGY TAB V Dr. David J. Lipman  
INFORMATION (NCBI) Dr. Ronald E. Cape,  
Discussant  
  
Discussion Board Members
- 10. NATIONAL SCIENCE FOUNDATION PROGRAMS  
  
Discussion Dr. Mary E. Clutter  
  
Board Members
- COFFEE BREAK  
(Photograph of Board members on Front Steps.)
- 11. REPORT FROM THE BOARD OF SCIENTIFIC TAB VI Dr. Gwilym S. Lodwick  
COUNSELORS
- 12. ONLINE PRICING AND LEASING OF DATABASES TAB VII Mr. Kent A Smith  
(Board Action Necessary.) Mrs. Lois Ann Colaianni  
Dr. Lois E. DeBakey,  
Discussant  
  
Discussion Board Members
- 13. HISTORY OF MEDICINE POSTER COLLECTION TAB VIII Dr. John L. Parascandola  
Mr. William Helfand  
  
Discussion Board Members
- 14. REGENTS' AWARD FOR SCHOLARSHIP OR  
TECHNICAL DEVELOPMENT Dr. Edward N. Brandt, Jr.
- 15. DIRECTOR'S AWARD Dr. Donald A. B. Lindberg



RESOURCE

TAB II

A. Resource Project

Tab A

B. Resource Improvement

Tab B

C. IAIMS

Tab C

PUBLICATION

TAB III

Dr. Jeanne L. Brand

SUMMARY LIST OF DISAPPROVED APPLICATIONS

TAB IV

Dr. Roger W. Dahlen

19. 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 91ST MEETING  
JUNE 6-7, 1989

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/  
June 6-7, 1989

The Board of Regents of the National Library of Medicine was convened for its ninety-first meeting at 9:00 a.m. on Tuesday, June 6, 1989, in the Board Room of the National Library of Medicine, Bethesda, Maryland. Dr. Edward N. Brandt, Jr. of the University of Oklahoma chaired the meeting. In accordance with P.L. 92-463 and the Determination of the Director, NIH, as announced in the Federal Register on May 5, 1989, the meeting was open to the public from 9:00 a.m. to 5:00 p.m. on June 6 and from 9:00 to 10:50 a.m. on June 7. The meeting was closed from 10:50 to adjournment at 11:30 a.m. on June 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., Chairman  
Dr. Ronald E. Cape  
Mr. H. Robert Cathcart  
Dr. Mary E. Clutter  
Dr. Don E. Detmer  
Dr. Edward A. Feigenbaum  
Dr. Ann K. Randall  
Dr. Jay P. Sanford  
Dr. Alvy R. Smith

**Alternates to ex officio members present were:**

Dr. Faye G. Abdellah, representing Dr. C. Everett Koop.  
Capt. Noel Dysart, representing Vice Admiral James A. Zimble.  
Col. Howard E. Fauver, representing Lt. Gen. Frank F. Ledford, Jr.  
Ms. Karen Renninger, representing Dr. John Gronvall.  
Brig. Gen. Michael J. Torma, representing Lt. Gen. Monte B. Miller.

**Unable to attend:**

Dr. Steven C. Beering  
Dr. James H. Billington  
Mr. Joseph H. Howard  
Ms. Nina W. Matheson

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. Jeanne L. 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 Collaianni, Associate Director for Library Operations  
Dr. George Cosmides, Deputy Director, SIS  
Dr. Roger W. Dahlen, Chief, Biomedical Information Support Branch, EP  
Ms. Becky Lyon-Hartmann, RML Program Coordinator, LO  
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, LHCBC  
Mr. Sheldon Kotzin, Chief, Bibliographic Services Division, LO  
Dr. David J. Lipman, Director, National Center for Biotechnology Information  
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  
Ms. Peri L. Schuyler, Deputy Chief, Bibliographic Services Division, LO  
Dr. Elliot R. Siegel, Assistant Director for Planning and Evaluation, OD  
Ms. Susan Buyer-Slater, Deputy Assistant Director for Planning and Evaluation, OD  
Dr. Melvin L. Spann, Chief, Biomedical Information Services Branch, SIS  
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. Joseph E. Rall, Deputy Director for Intramural Research, NIH  
Dr. Lois E. DeBakey, Professor of Scientific Communications, Baylor College of Medicine -- Consultant to Board of Regents  
Dr. Linda Harris, Staff Director, Secretary's Council, Office of Disease Prevention and Health Promotion, HHS  
Dr. William H. Helfand, Consultant for the History of Medicine, NLM  
Dr. Gwilym S. Lodwick, Associate Radiologist, Harvard Medical School -- Chairman, Board of Scientific Counselors, NLM

## I. OPENING REMARKS

Dr. Edward N. Brandt, Jr., Chairman, welcomed the Regents to the ninety-first meeting of the Board of Regents of the National Library of Medicine. He introduced two new members: Dr. Ronald E. Cape, Chairman of the Cetus Corporation, and Brigadier General Michael J. Torma, U.S. Air Force. He welcomed back Captain Noel Dysart, U.S. Navy, who was representing Captain Vernon Schinski. The Chairman thanked Dr. Ann K. Randall for chairing the last meeting in his absence. Dr. Brandt noted that this is the last meeting for Dr. Randall and himself, and he thanked the Regents and NLM staff for their hard work and cooperation. Dr. Alvy R. Smith's company, Pixar, won an Oscar for an animated film at the last Academy Awards ceremony--the first computer-generated piece ever to be so honored.

## II. REPORT OF THE NIH DEPUTY DIRECTOR FOR INTRAMURAL RESEARCH

Dr. Joseph E. Rall noted the historical conversion of libraries from archives to active disseminators of information in many forms. Today, for example, the need is to develop systems that will handle immense amounts of gene sequencing data. NLM and the biomedical community is at a crossroads in trying to determine what is the most efficient and effective way to handle this flood of information that will drown our scientists unless new information-handling methods are devised. The Library's new National Center for Biotechnology Information has an opportunity to make a major difference in this area. In response to a question from Dr. Feigenbaum, Dr. Rall said that NIH has been working on a local area network (LAN) for some years; it has proceeded slowly, in part because of the magnitude of the needs in the Clinical Center.

## III. REPORT OF THE DEPUTY SURGEON GENERAL

Dr. Faye G. Abdellah reported that Dr. James O. Mason is the newly appointed Assistant Secretary for Health; he is very supportive of the NLM and will be an ally of this Board. As part of the 100th observance of the PHS Commissioned Corps, it is being proposed that a permanent office of PHS history be established; NLM's History of Medicine staff has been very helpful in PHS centennial activities over the last year. PHS is also planning to establish a national museum of health and medical history. As has been widely reported, Dr. Koop plans to step down as Surgeon General on July 13. An Acting Surgeon General will be appointed. At a press conference last week Dr. Koop released a report on drunk driving (copies were distributed to the Regents). After her report, Dr. Brandt announced that Dr. Abdellah herself would be retiring from the PHS; she has been a staunch friend of the NLM over the years, and the Regents will certainly miss her. The Board put their appreciation in the form of a resolution (see Attachment B).



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

The Regents approved without change the minutes of the January 26-27, 1989, meeting.

#### **V. DATES OF FUTURE**

The Board will meet next on October 5-6, 1989. The winter meeting on January 18-19, 1990, was confirmed. The meeting for next spring was set for June 7-8.

#### **VI. REPORT OF THE NLM DIRECTOR**

Dr. Donald A. B. Lindberg reported that NLM has been allocated, from various sources, 12 new positions for use in the new National Center for Biotechnology Information. He introduced Dr. Alexa McCray, who has received a permanent appointment in the Lister Hill Center, and Dr. David Kronick, on sabbatical from the University of Texas, who will be doing research in the History of Medicine Division. As to budgetary matters, Dr. Lindberg reported that the Library will receive \$78.3 million in fiscal year 1990 (an increase of about five percent over 1989); an additional \$500,000 (and 2 positions) will be dedicated to AIDS activities. For the first time in years the Library Operations' part of the NLM budget will be at the "current services" level. Although the budget is adequate to continue current programs, Dr. Lindberg emphasized that it cannot fund any of the expanded programs and the new initiatives recommended by the Outreach Planning Panel. Outreach, in fact, was one of the three topics that generated the most interest in the recently completed Congressional hearings at which he testified; the other two were biotechnology and AIDS. NLM AIDS-related activities have been reported recently to the Board; later in this meeting there will be reports on biotechnology and outreach.

Dr. Lindberg briefly discussed the evolution of NLM's outreach initiatives that culminated in the report to be considered by the Board today. An important impetus was the recent mandate by Congress that the NLM should engage in publicity activities to ensure that its services are widely used by the health professional community. To give the Library guidance in carrying out this mandate, the Board of Regents appointed an outreach panel headed by Dr. Michael DeBakey. The Director said that the panel did a superb job; he looks forward to the Board's review and action on the panel's report. Outreach is the first of three areas in which the NLM Long-Range Plan will be updated. Work on the second area, "electronic imaging," has already begun and a panel under the leadership of Dr. Donald W. King will meet at the Library later this month. The third area in which the plan will be updated is the training of medical librarians.

In the area of legislation, Dr. Lindberg noted that the National Center for Biotechnology Information and the Medical Library Assistance Act require reauthorization; the latter includes proposals to restore the library construction grant authority and to expand the

Board of Regents from ten to thirteen appointed members. The Congress is also interested in NLM's program to promote the use of permanent paper in medical publishing. Senator Pell has introduced a bill that would establish a national policy on permanent paper; Mr. Charles Kalina, NLM Special Projects Officer, testified at recent hearings on the subject.

On the subject of transferring to NLM certain biotechnology- and medical informatics-related programs of NIH's Division of Research Resources (DRR), a subject on which the Board of Regents expressed its opinion at its last meeting, Dr. Lindberg said that Dr. Wyngaarden has agreed, at least in part, with the Board's recommendations. Our attempts to have these recommendations implemented, however, have not yet succeeded; Dr. Lindberg will have further discussions on the subject with the DRR Director and the NIH Director. [Note: The Board later discussed this subject and passed a resolution--Attachment C.] On a more positive note, Dr. Lindberg ended his report by noting the Critical Incident Study that is looking into how the Library's online systems are being used by practitioners is going quite well. The Library was pleased with an interim report from the contractor and a report will be made at a future Board meeting.

#### VII. ELECTION OF CHAIRMAN

Dr. Faye G. Abdellah, who chaired the nominating committee appointed at the last Board meeting, said that the committee nominated Dr. Don E. Detmer to serve as Chairman for the coming year on the expiration of Dr. Brandt's term as Regent. The nomination was seconded and passed unanimously by the Board.

#### VIII. TOXIC CHEMICAL RELEASE INVENTORY DATA BANK

Mr. Bruno M. Vasta of NLM's Specialized Information Services brought the Board up to date on the Environmental Protection Agency's Toxic Chemical Release Inventory (TRI) Database which is being put online by NLM. The TRI is in response to a Congressional mandate that EPA collect comprehensive information about toxic chemicals emitted or released into the environment. The Board previously heard a brief report on TRI at the October 1988 meeting. As of June 19, Mr. Vasta said, the database, with slightly more than 74,000 records on 307 hazardous substances (about 270 megabytes), will be publicly available 24 hours a day, 7 days a week on NLM's TOXNET system. The placement of TRI on TOXNET will make it simple for TRI users to have access to NLM's other toxicologically related databases. After describing TRI features, Mr. Vasta and Dr. Dorothy Stroup demonstrated the pre-release test system, both in its direct command language mode and its menu-driven mode. The first sample search, using the command language, was for toxic releases in Alaska--eight records--and the various fields within each record were briefly described. The ability of the system to perform numerical manipulations of the data was also demonstrated. A search using the simplified menu approach that was done for two geographic terms (Wilmington, Delaware), a named company, and a specific Chemical Abstracts Services Registry Number (for formaldehyde) resulted in one retrieved record.

Following the online demonstration, there was a discussion among the Regents about the possibility of developing an easier, natural-language interface. Mr. Vasta said there were plans to make the existing interface less cumbersome by eventually developing a single-screen menu that would allow the user to specify all the parameters of a search at once. But since the EPA had specifically asked for a menu-driven system for novice users, NLM felt obligated to implement this approach as the first stage of menu development. Dr. Feigenbaum suggested that this system might be an interesting one to apply one of the two existing English language interfaces to databases.

## **IX. REPORT OF THE OUTREACH PLANNING PANEL**

Dr. Elliot R. Siegel, NLM Assistant Director for Planning and Evaluation, reviewed the charge of the Board of Regents to the Outreach Planning Panel. As Dr. Lindberg mentioned earlier, NLM has received a specific mandate from the Congress to engage in publicity activities. The Library has sought advice in how to do this by convening an Outreach Planning Panel that will recommend actions within the context of updating the Long-Range Plan. The Panel of 30 members, chaired by Dr. Michael DeBakey, met three times since last October to consider how NLM could improve and expand access to its information systems by health professionals. The Panel's final report, which had been sent to the Regents earlier, groups its recommendations in four major categories: those having to do with individual health professionals and their relation to the Regional Medical Library Network, strengthening access by hospitals to national information sources, training in health information management, and the development by NLM of new products and services. Dr. Siegel briefly discussed the recommendations within each category and the specific fiscal and staff requirements that the Panel said would be necessary to accomplish them. In summary, the Panel's recommendations would require an incremental increase of \$26 million in FY 1990 (increasing to \$53.5 million in FY 1994) and 17 new full-time staff members. Dr. Siegel concluded by quoting from Dr. DeBakey's testimony before the House of Representatives hearings in April: "Mr. Chairman, the Panelists were unanimous in recommending all that I have laid out before the Committee. When we considered these major programs, we did so in full recognition of the serious fiscal constraints faced by the Federal Government. Nevertheless it is our judgment that these expenditures would be many times repaid in the form of higher quality medical care and biomedical research and, ultimately, in lives saved."

Following Dr. Siegel's presentation, Ms. Karen Renninger, who represented the Regents at the three Panel meetings, reported on the meeting yesterday of the Board's Long-Range Planning Subcommittee when it reviewed the Panel's report. She reported that the Subcommittee endorses the Report with the following four recommendations: (1) that NLM consider renaming the Regional Medical Library Network as, possibly, the National Medical Library Network, or a similar name to be determined; (2) that, as reflected in the Panel's discussions, the

Report specifically address outreach activities targeted to minority medical professionals, especially in underserved areas; this might include the assistance or involvement of historically black institutions; (3) that the Board endorse the Panel Report and have it incorporated into the existing Long-Range Plan; and (4) that the Board formally thank Dr. Michael DeBakey and the Panel members for their work on this landmark project. After Ms. Renninger's report, Dr. Lois E. DeBakey, NLM consultant, said that Dr. Michael DeBakey considered it a privilege to serve the Library in this manner and that he wanted the final report to reflect the outstanding assistance and cooperation he received from Dr. Lindberg, Dr. Siegel, and the other NLM staff. She quoted some of the testimony recently presented by her brother to the Congress on behalf of the NLM. In summary, she said that the Panel's recommendations are "sound, sensible, and securable," and she recommended that they be adopted by the Board of Regents.

The Board of Regents endorsed the Outreach Planning Panel's Report and incorporated it as an update to the existing Long-Range Plan, with the addition of the recommendations of the Board's Planning Subcommittee as presented by Ms. Renninger and with the words of appreciation of Dr. Michael DeBakey for the NLM staff as presented by Dr. Lois DeBakey.

#### X. NATIONAL CENTER FOR BIOTECHNOLOGY INFORMATION (NCBI)

Dr. David J. Lipman, Director of the new Center, said that its mission is to make the information generated by molecular biologists throughout the world more useful for professionals in the biomedical community. The Center plans to improve existing databases and develop new databases as necessary, integrate these databases, develop new information retrieval systems, solve computational problems arising from the analysis of this information, and do basic research on the information itself--the control of gene expression, molecular evolution, sequence-structure relationship, etc. Progress so far has been encouraging, due in large part to cooperation from other NIH components and from the staff of NLM itself. The Center is now part of the Intramural Staff Fellow Program, meaning that it can obtain medical and research staff fellows--the first ever at NLM. There has also been encouraging cooperation from scientists around the world, including Europe and Japan. The Center is putting together working groups in four areas: database technology, software technology (offers of collaboration from scientists have been very encouraging for this), information resources (user support, distribution of software and databases), and basic research.

Dr. Lipman commented on the lack of currency and the limits on accessibility of data in currently available molecular biology databases. One response of the NCBI, with the help of staff in Library Operations, GenBank, and Protein Identification Resource (at Georgetown University), is to develop a "backbone database." Some considerations of the backbone's design: it should contain data elements that satisfy 95 percent of the molecular biologists 95 percent

of the time; it should include data elements that would maximize linkability to other existing databases; and it should be limited to data elements that can be obtained by informatics specialists. NCBI hopes that within a month of the startup of the database backbone this fall, data gathered by the informatics specialists will begin to be available to the biomedical community. Subsequently, biological specialists will work on the controlled vocabulary, do quality control, etc. Dr. Lipman showed a slide of a segment of an E-coli chromosome map generated as part of a project that the Center has completed. Among other things, the project demonstrated that the genetic map and the physical map should be linearly equated; scientists who work in this area will be using the information in this linked map to help revise the genetic map. In the course of this work a number of previously unidentified repeated genes in E-coli were found, and in terms of sequencing the chromosome of E-coli the Center's map shows what areas could be linked together to more efficiently sequence the entire chromosome.

## **XI. NATIONAL SCIENCE FOUNDATION PROGRAMS**

Dr. Mary E. Clutter, NSF Assistant Director for Biological, Behavioral, and Social Studies, reported on the mandate of the National Science Foundation (NSF), the scope of its programs, and its organization. She noted that NSF, an independent government agency, is frequently confused with the National Academy of Science, which it is not. The NSF mandate from Congress is to maintain the health of science, engineering, and science education in the United States. The Foundation's budget request for 1990 is \$2.149 billion; this would be an increase of about 14 percent over 1989. NSF has no intramural research but funds a substantial amount of research through grants, mostly at universities. NSF provides about one quarter of all Federal support for basic research in colleges and universities. There are seven NSF directorates, including of Dr. Clutter's biological, behavioral, and social sciences, and an eighth component for operations--program development and management. The largest directorate in terms of budget is that of mathematical and physical sciences. In 1990, 60 percent of NSF's support will go to individual investigators, 19 percent for facilities and support, 13 percent to groups, and 8 percent to centers. She briefly described NSFNET, a high-speed network that will connect the Foundation's five supercomputers. In the future, the greatest pressure on Federal programs for science and technology will be from NASA's space station (\$25-30 billion) with considerably smaller amounts for such major projects as the superconducting supercollider, AIDS research, and the human genome project.

## **XII. REPORT ON THE BOARD OF SCIENTIFIC COUNSELORS**

Dr. Gwilym S. Lodwick, Chairman of the Board of Scientific Counselors, reported on the May 1-2 meeting of that body. The Board reviewed two intramural research projects of the Lister Hill Center: Electronic Document Storage and Retrieval (EDSR)--Machine-Readable Archive in

Biomedicine (MRAB) and the Color Medical Imaging System (CMIS). The EDSR project was begun in 1985 to investigate electronic imaging technologies as a means of preserving the biomedical literature. A functioning prototype system has been used to estimate costs and throughput projections for electronic document preservation. The Machine-Readable Archive represents the next phase in this project--where computerized techniques are used to analyze the content of page images. Page image management systems to support online document delivery (e.g., automated FAX transmission) are also a component of MRAB. Both projects were reviewed favorably by the Board and, although they made a series of specific suggestions for additional research in this area, they recommended that the EDSR and MRAB continue to receive support.

The second project, the Color Medical Imaging System, seeks to develop methods for acquiring and representing high resolution color digital images. The proposed test images for this project are histological specimen slides. The Board of Scientific Counselors applauded the goal and basic concept of the project. They made a number of recommendations, including that the project should be reviewed by experts in image processing, microphotography, and electronic mapping and that the designers should interact with future users such as histologists, pathologists, and dermatologists. Dr. Lodwick announced that his term on the Board of Scientific Counselors will expire the end of June. His successor will be Dr. Jerome P. Kassirer.

### XIII. ONLINE PRICING AND LEASING OF DATABASES

Mr. Kent Smith, NLM Deputy Director, noted that the subject of how NLM prices its computerized services is much less volatile now than before. In years past the Library had been accused by some of pricing its services too low and by others of pricing them too high. Four factors allowed us to weather the criticisms: a clear statute (the NLM Act) that permits us to set fees, a concerned and active Board of Regents that sets policies on pricing (but leaves the actual setting of a fee structure to the Director), a defensible pricing policy, and reasoned price determination methodology. Mr. Smith reviewed each of these reasons in more depth. NLM is now cited by the Office of Management and Budget and other agencies as a paragon of pricing rationality. Among the present policies: prices shall be set at a reasonable rate so as not to discourage access; all domestic users shall have equal access at an equal price; i.e., distance is no barrier to service or determinant of price; and the government and users share in the cost of the system. The underlying pricing philosophy is that biomedical information is a public good, not a commodity to be bought and sold in the marketplace; related to this is the principle that nothing should deter the dissemination of this information to those who need it. In practice, the Library recovers the full cost of providing access to online services across all MEDLARS products--not product by product. This ensures that esoteric or less-used databases are not

priced out of the market. NLM bears all costs associated with building the databases (i.e., acquiring the literature, cataloging, indexing--NLM's basic functions); users pay costs of access (telecommunications, computer usage, network management, etc.). An exception to this policy is that foreign users (as nontaxpayers) are charged at a higher rate to recover their share of the costs of generating the databases. Mr. Smith showed the Regents a chart that showed how the actual costs are distributed between generation and usage costs and between products (online access, tapes, publications). He described how an algorithm calculates the actual online charges. He also described how NLM arrives at charges for leasing MEDLARS tapes. He noted that revenues received are more than keeping pace with costs. In 1988, NLM collected \$12.2 million; costs were about \$7 million. (The excess was returned to the U.S. Treasury.)

Following Mr. Smith's presentation, Ms. Lois Ann Colaianni, Associate Director for Library Operations, reviewed the present arrangements whereby NLM leases all MEDLARS databases, and she presented five proposed changes in charging for leasing tapes of the MEDLARS databases. The databases are divided into two groups. The first group includes technical services databases used to process and organize materials for libraries' collections--CATLINE, AVLINE, SERLINE, and MeSH. The charges for these databases is a flat rate. The other, larger group of databases includes MEDLINE, TOXLINE, etc. The charge for leasing these includes an annual minimum fee offset by a usage charge which is currently calculated based on the number of hours of use. No changes are proposed for the flat rate for the technical services databases or the minimum fee for each of the other databases. However, NLM is proposing to change the way usage charges are calculated for those who license NLM data and have been reporting connect hours for determining the usage charge. Because of faster computers and more sophisticated software (like Grateful Med), NLM is proposing to have licensees collect usage data using an algorithm with two measurable components: connect time and characters transmitted to the user's terminal. NLM has attempted to approximate the current usage charge of \$4 per hour and has calculated that under the new system some MEDLARS licensees would see a modest increase in charges, most would not. The actual cost during prime time would be calculated at \$2.50 per connect hour during prime time and 1.7 cents per thousand characters transmitted. There will be adjustments--for nonprime time and the foreign user surcharge. Mrs. Colaianni briefly described several special charges--extra charges for special services provided licensees, such as formulating or providing output in special formats. She also described the proposed charge structure for those who lease the databases for CD-ROM products, including those who plan to network several CD players. NLM is also proposing to collect data from the 40 or so medical schools that license portions (subsets) of MEDLINE to run on their own computers for their own users. Most are eligible to pay a flat rate and therefore do not report usage. However, NLM will now ask them for data on the amount of usage on their systems since it is important for the Library to gather as complete data as possible on the use of MEDLINE in all its forms. Finally,

Mrs. Colaianni described a one-year experimental flat-rate arrangement between the NLM and the Walter Reed Army Medical Center whereby NLM will provide Grateful Med, 1,000 online access codes, and training. In return, NLM will collect a variety of statistics and usage data to enable us to see patterns of usage by different types of individual health professionals who have unlimited access to the databases.

Following the presentations, Dr. Lois DeBakey commented that the principles the Library has followed in pricing services continue to be valid and that NLM's proposed policies appear reasonable and desirable. After discussion, the Board unanimously approved the proposed changes.

#### **XIV. HISTORY OF MEDICINE POSTER COLLECTION**

Dr. John Parascandola, Chief of the History of Medicine Division (HMD), reported on a new emphasis on collecting posters as part of the HMD prints and photographs collection. The Library holds a number of health-related posters going back to the early 20th century. Several years ago, with the help of Dr. William Helfand, an expert on this genre, HMD began systematically to seek out contemporary posters. Following Dr. Parascandola's introduction, Dr. Helfand described the difficulties of collecting posters, a form of communication that, given the contemporary nature of subjects and vicissitudes of the elements to which the posters are exposed, is ephemeral in nature. Those dating from the latter half of the last century are primarily of commercial products; posters on public health topics date from the early part of this century. In November 1987 the Library began a vigorous campaign to collect contemporary posters. About 2,500 posters from around the world have been added to the collection, those dealing with AIDS making up the largest single category.

#### **XV. AWARDS**

##### 1989 NLM Director's Awards

Dr. Lindberg presented 1989 NLM Director's Awards to two NLM staff members. Dr. Dennis Black, Chief of the Office of Acquisitions Management, was cited for "exceptional skill in the management of the Library's acquisition functions, the sound policies and procedures you have instituted within your office, and the flawless advice you provided to senior management." Dr. Elliot R. Siegel, Assistant NLM Director for Planning and Evaluation, received the award for "outstanding success in managing the Library's planning and evaluation programs....your excellent work in assisting the NLM to develop effective strategies and updating the Long-Range Plan has been invaluable in responding to the Library's Congressional mandate for expanded outreach."

##### 1989 Regents' Award

Dr. Brandt presented the 1989 Regents' Award for Scientific or Technical Achievement to Mr. Philip I. Wexler, Technical Information Specialist in the Specialized Information Services. Mr. Wexler was



cited for "outstanding scholarly work exemplified by the recently published book, 'Information Resources in Toxicology.' Your treatise is a unique contribution...and will become a standard work."

## **XVI. UNIFIED MEDICAL LANGUAGE SYSTEM**

Ms. Betsy L. Humphreys, Deputy Associate Director for Library Operations, brought the Regents up to date on progress on the Unified Medical Language System (UMLS). The UMLS is intended to help overcome barriers to the use of computerized medical information systems. Chief among these barriers is the variety of independently constructed vocabularies and classifications used. NLM's own Medical Subject Headings (MeSH) is one such vocabulary; others, more narrowly focused, are developed by professional groups, for ad hoc classifications of concepts created for specific knowledge-base systems, and as numeric coding schemes used to classify diagnoses and procedures in clinical records. The goal of the UMLS project is to facilitate the retrieval and integration of information from diverse machine-readable sources, including descriptions of the biomedical literature, clinical records, factual databanks, and medical knowledge bases. NLM plans to provide products that can compensate for differences in the vocabularies and coding schemes used in different systems, as well as differences in terminology employed by system users. The UMLS project is definitely not an attempt to impose a single standard vocabulary, a single standard record format, or a single medical knowledge base. The project began in FY 1986, includes both intramural R&D at NLM, work done under contract, and advice from professional associations. The American Medical Association is engaged in obtaining and coordinating input from the private sector.

The objectives of the present phase of the project (August 1988-August 1989) are to build and test the initial versions of three basic UMLS components. Ms. Humphreys showed a diagram that showed the relation of the principal elements of UMLS--knowledge sources (databases) and function features (programs)--and users. There will be at least three knowledge sources: a Metathesaurus, a semantic network, and an information source map. She briefly described each. Using graphics, Ms. Humphreys described in some detail the individual fields of the Metathesaurus, using as an example the term "Sturge-Weber syndrome." The initial version of the Metathesaurus, which is termed Meta-1, will have about 30,000 fully edited entries and an additional 50,000 abbreviated records for synonyms and chemical names. NLM plans to begin distribution of Meta-1 in the spring of 1990. Meta-1 will be evaluated in several environments: in an expert search assistant that will be invoked on demand from Grateful Med, in a Yale School of Medicine search interface that retrieves MEDLINE citations related to specific psychiatric problems in patient records, in an experiment generating MEDLINE search queries relevant to information in the DXplain diagnostic system, indexing, in retrieving images from the University of Utah's "Slice of Life" image collection, and in various experiments making data from multiple machine readable resources available at clinical work stations.

Dr. Feigenbaum strongly supports the development of the UMLS, calling it "visionary" in the long run and "essential" in the short run. It is an ideal (and rare) blending of some practical components of artificial intelligence technology and standard data processing technology. It shows an unusual orientation toward the user's thinking style. Computers should be made to conform to the way we think; we should not be made to conform to the way the computer "thinks." The UMLS will do this. It is another step, he said, in the "demise of the system-programmer mentality." In summary, the UMLS is exciting and would be considered innovative in any setting; for medical informatics it's revolutionary.

## **XVII. REPORT OF THE ACTING ASSOCIATE DIRECTOR FOR EXTRAMURAL PROGRAMS**

Mr. Arthur J. Broering noted that the new Fellowship applications for the Medical Informatics Research Training Program were due at NLM on May 10 and for the newly amended Resource Grants Program on June 1. Unfortunately, total number of applications received for the two programs is not known. However, for the Resource Grants Program alone, 500 applications had been requested and were mailed out in response to the program announcement.

Mr. Broering reported that approximately \$500,000 was transferred recently to supplement two ongoing projects: the protein identification resource project at Georgetown which was approved by the Board at its January meeting, and the Tenth International Workshop on Gene Mapping which was approved by the Board in a mail ballot. Both grants are funded jointly by the Division of Research Resources and NLM.

Regarding NLM's new initiative on biotechnology, an ad hoc initial review was recently performed, and these applications will be reviewed at this meeting.

Mr. Broering then reported on the reorganization of the Biomedical Library Review Committee (BLRC) into a flexible study section. One of the main reasons for the change was to have expertise on the committee to review the biotechnology proposals which in 1988 and 1989 had to be reviewed by an ad hoc group. In addition, the new structure will decrease the need for ad hoc reviews when a member of the committee has an application pending NLM review. Such applications may simply be serviced by one of the subcommittees. Mr. Broering reviewed the history of the Biomedical Library Review Committee from its inception in 1965 to its present reorganization into a flexible study section. He stated that the BLRC will consist of 21 members, divided into three subcommittees of seven members each: the Medical Library Resource Subcommittee, the Medical Informatics Subcommittee, and the Biotechnology Information Subcommittee. This will ensure that judgments on the merit of an application are made by representative experts and that consistent and uniform evaluations will be the

outcome. Each subcommittee will have seven members, and a quorum of four is required. It is assumed that the full committee will meet in general session in the morning of the first day for administrative discussions and information reports, followed by individual subcommittee meetings. The newly organized BLRC will meet for the first time in November of this year, and it will be easier to see after the first meeting what accommodations should be made, if any.

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MEETING CLOSED FOR THE REVIEW OF GRANT APPLICATIONS, JUNE 7, 10:50 A.M.  
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### **XVIII. REVIEW OF PENDING APPLICATIONS**

Before proceeding with the considerations 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 applications review, the statement noting that they had not participated in the discussion of any application which presented a conflict of interest.

The Board reviewed 62 applications, requesting \$22,455,504, and recommended for approval 54 applications in the amount of \$12,000,808 for the total years requested. Seven applications in the amount of \$1,539,100 were disapproved. One application in the amount of \$124,639 was deferred. 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.

### **IX. ADJOURNMENT**

The meeting was adjourned at 11:30 a.m. on Wednesday, June 7, 1989.

\* \* \* \* \*

Monday, June 5, 1989, 1:00 to 2:00 p.m.  
(Subcommittee on Pricing of NLM Services under Attachment E)  
Monday, June 5, 1989, 1:00 to 2:15 p.m.  
(Lister Hill Center Subcommittee under Attachment F)  
Monday, June 5, 1989, 2:00 to 3:30 p.m.  
(Extramural Programs Subcommittee under Attachment G)  
Monday, June 5, 1989, 4:00 to 5:00 p.m.  
(Planning Subcommittee under Attachment H)

Tuesday and Wednesday, June 6 and 7, 1989  
(Full Board of Regents)

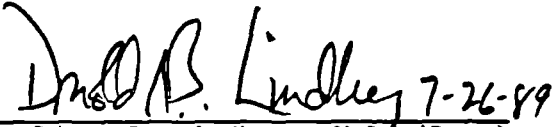
\* \* \* \* \*


**ACTIONS TAKEN BY THE BOARD OF REGENTS**

1. The Board passed a resolution expressing its appreciation to Dr. Abdellah on her retirement for her long and effective service on the Board of Regents. (Attachment B)
2. The Board passed a resolution expressing its strong support for the decision of the NIH Director to transfer advanced computer science projects and funds from DRR to NLM. (Attachment C)
3. The Board unanimously elected Dr. Don E. Detmer Chairman for the coming year.
4. The Board endorsed recommendations by the Outreach Planning Panel, including additions made by the Board's Planning Subcommittee.
5. The Board unanimously approved the pricing changes.
6. The Board presented the 1989 Regents' Award for Scholarship or Technical Achievement to Mr. Philip I. Wexler.
7. The Board concurred with 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.

  
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)  
Executive Dean  
College of Medicine Health Sciences Center  
University of Oklahoma  
P.O. Box 26901  
Oklahoma City, OK 73190 - 405-271-2265

BEERING, Steven C., M.D. (8/3/91) President Purdue University West Lafayette, IN 47907 <u>317-494-9708</u>	FEIGENBAUM, Edward A., Ph.D. (8/3/90) Professor of Computer Science Computer Science Department Stanford University, HPP Bldg. C Stanford, CA 94305 <u>415-723-4878</u>
CAPE, Ronald E., Ph.D. (8/3/92) Chairman Cetus Corporation 1400 Fifty-Third Street Emeryville, CA 94608 <u>415-420-3300</u>	MATHESON, Nina W. (8/3/90) Director William H. Welch Medical Library Johns Hopkins University School of Medicine 1900 East Monument Street Baltimore, MD 21205 <u>301-955-2702</u>
CATHCART, H. Robert (8/3/90) President Pennsylvania Hospital Eighth and Spruce Streets Philadelphia, PA 19107 <u>215-829-3312</u>	RANDALL, Ann K., D.L.S. (8/3/89) 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>
DETMER, Don E., M.D. (8/3/91) Vice President for Health Sciences University of Virginia Box 179, Medical Center Charlottesville, VA 22908 <u>804-924-2444</u>	SMITH, Alvy R., Ph.D. (8/3/92) Executive Vice President Pixar 3240 Kerner Boulevard San Rafael, CA 94901 <u>415-258-8122</u>

EX OFFICIO MEMBERS

Primary

Alternate

BILLINGTON, James H., D.Phil.  
Librarian of Congress  
Library of Congress  
10 First Street, S.E.  
Washington, DC 20540 202-707-5205

**Board of Regents Roster (Continued)****Primary****Alternate**

**CLUTTER, Mary E., 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

**GRONVALL, John, M.D.**  
 Chief Medical Director  
 Veterans Health Services  
 and Research Admin. (10)  
 Dept. of Veterans Affairs  
 810 Vermont Avenue, N.W.  
 Washington, DC 20420 202-233-2596

**RENNINGER, Karen**  
 Chief, Library Division (142D)  
 Dept. of Veterans Affairs  
 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

**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

**LEDFORD, Frank F., Jr., 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

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

**TORMA, Michael J., Brig. Gen., USAF, MC**  
 Chief, Quality Assurance Div. (SGPQ)  
 Bolling Air Force Base  
 Washington, DC 20332-6188 202-767-1849

**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

**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

## **Resolution of the Board of Regents**

**June 6, 1989**

**Faye G. Abdellah, Ed.D., Sc.D., Deputy Surgeon General of the U.S. Public Health Service, has been a long-time and effective friend of the National Library of Medicine. Her advocacy has on numerous occasions been a key element in the success of the Library's programs. Now, on her retirement, the Board of Regents expresses its deep appreciation for all her assistance and for her cheerful and wise counsel. In unanimous resolution we wish her success and happiness in her new undertakings.**

RESOLUTION

Background to the Resolution

On January 26, 1989, the Board of Regents passed a resolution urging the Director of NIH to transfer to the National Library of Medicine from the B RTP of DRR the authority and funding for Computer Resources for biomedical research, core medical informatics research, and biotechnology data bases. It noted in its communication to the Director that certain circumstances offer a historic, perhaps unique, opportunity to reposition authority and funding in these important areas of information science and technology in a way that is optimal from the point of view of the national interest.

We are gratified that the Director of NIH, in his decision, agreed with our recommendations.

In the context of our January 26 resolution, and the discussion with Dr. Wyngaarden that preceded it, we understand his decision to mean that:

- a) funding for the programs would be transferred with the authority, as we recommended (since the transfer without the funds would be hollow and indeed harmful to the relevant research community)
- b) that advanced computer science resources and research projects would be transferred (but not the instrumentation-related projects of B RTP)

We note that the implementation of Dr. Wyngaarden's decision regrettably has not moved forward. With a new cycle of proposals by the investigator community being prepared, it is now timely, even urgent, that the necessary implementation decisions and actions be taken. The investigators need to see clearly the continuity of NIH's commitment to the support of advanced computer systems and science in biomedicine, and they need to understand to whom within the NIH family they are applying for funding.

With these considerations as background, the Board of Regents passed the following resolution:

RESOLUTION:

BE IT RESOLVED that The Board of Regents of the National Library of Medicine expresses its strong support for the decision of the NIH Director to transfer advanced computer science projects from B RTP to NLM; continues to support the position that funds associated with the transferred projects be moved to the NLM budget to pay for the transferred projects; and urges that the implementation of the basic decision be accomplished by June 30, 1989.



APPLICATIONS APPROVED BY COUNCIL  
(ARRANGED NUMERICALLY BY PROGRAM)

COUNCIL DATE: MAY 1989

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
3 007 LM03955-02S5	MEDICAL LIBRARY RESOURCE IMPROVEMENT	4,000
3 007 LM03955-02S6	MEDICAL LIBRARY RESOURCE IMPROVEMENT	4,000
3 007 LM03955-02S8	MEDICAL LIBRARY RESOURCE IMPROVEMENT	4,000
1 007 LM04979-01A1	MEDICAL LIBRARY RESOURCE IMPROVEMENT	4,000
1 007 LM05046-01	MEDICAL LIBRARY RESOURCE IMPROVEMENT	4,000
1 007 LM05049-01	MEDICAL LIBRARY RESOURCE IMPROVEMENT	4,000
1 007 LM05052-01	MEDICAL LIBRARY RESOURCE IMPROVEMENT	4,000
1 007 LM05054-01	MEDICAL LIBRARY RESOURCE IMPROVEMENT	2,000

APPLICATIONS APPROVED BY COUNCIL  
 (ARRANGED NUMERICALLY BY PROGRAM)  
 COUNCIL DATE: MAY 1989  
 INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE  
 PROG. CLASS:

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
1 G07 LM05055-01	MEDICAL LIBRARY RESOURCE IMPROVEMENT	01 54,959
1 G07 LM05069-01	MEDICAL LIBRARY RESOURCE IMPROVEMENT	01 4,600
1 G07 LM05077-01	MEDICAL LIBRARY RESOURCE IMPROVEMENT	01 4,000

APPLICATIONS APPROVED BY COUNCIL  
 (ARRANGED NUMERICALLY BY PROGRAM)  
 PROG. CLASS: NATIONAL LIBRARY OF MEDICINE

COUNCIL DATE: MAY 1989

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
1 G08 LM04915-01A1	ACOG INTEGRATED ACADEMIC INFORMATION MANAGEMENT SYSTEMS:	01A1 305,023 02 320,613 03 537,786
1 G08 LM05004-01	KIRKSVILLE OSTEOPATHIC LIBRARY AUTOMATION PROJECT	01 82,808 02 22,845
1 G08 LM05047-01	MV CONSULT: A COMPUTER-BASED HEALTH INFORMATION NETWORK	01 319,208 02 222,198 03 157,089
1 G08 LM05050-01	IAIMS PLANNING U WASHINGTON HEALTH SCIENCES CENTER	01 141,155 02 136,201
1 G08 LM05061-01	PLANNING STAGE OF IAIMS	01 41,569 02 48,573

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE	APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
	2 R01 LM04508-04	THE EARLIEST ILLUSTRATED ANATOMICAL MANUAL	04 13,046
	2 R01 LM04583-04	EXPERT AND NOVICE CLINICAL DECISION MAKING	04 136,042 05 147,268 06 75,922 07 63,051 08 65,059
	2 R01 LM04696-03	EVALUATION OF OPERATING CHARACTERISTICS AND CLINICAL USE	03 132,257 04 157,654 05 148,505
	1 R01 LM04890-01A1	USING MESH VOCABULARY TO ACCESS CLINICAL DATA	01A1 92,960 02 98,124 03 104,720
	3 R01 LM04925-01S1	IMAGE-BASED KNOWLEDGE SYSTEM IN ANATOMY (SUPPLEMENTAL)	01S1 46,585 02 49,380 03 52,343 04 55,483 05 58,812
	1 R01 LM05044-01	PARALLEL COMPUTATION AND MOLECULAR GENETICS	01 110,176 02 118,493 03 127,453
	1 R01 LM05051-01	EMPIRICAL CAUSAL KNOWLEDGE IN MEDICAL DIAGNOSIS	01 85,248 02 93,816 03 98,507
	1 R01 LM05062-01	INFORMATION TECHNOLOGY IN THE MEDICAL CURRICULUM	01 152,356 02 158,450 03 164,787 04 171,378 05 178,232

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
1 R01 LM05066-01	17TH CENTURY DUTCH MEDICINE AND NATURAL HISTORY	01 44,873
1 R01 LM05067-01	FROMM-REICHMANN AND THE TREATMENT OF PSYCHOSIS, 1920-55	01 24,569 02 11,285
1 R01 LM05091-01	GENE MODELER 2: ENHANCEMENTS AND PARALLEL IMPLEMENTATION	01 75,301 02 62,349 03 65,317
1 R01 LM05093-01	TRANSLATOR FOR MOLECULAR BIOLOGY DATABASE QUERIES	01 85,837 02 86,113 03 86,720
1 R01 LM05094-01	AUTOMATED FEATURE DETECTION FOR BIOLOGICAL SEQUENCES	01 68,690 02 46,613 03 49,876
1 R01 LM05095-01	AN IMPROVED MODEL FOR PREDICTING TERTIARY STRUCTURE OF D	01 72,846 02 75,615 03 78,531
1 R01 LM05097-01	NATURAL LANGUAGE INTERFACES FOR BIOSEQUENCE DATABASES	01 214,110 02 199,800 03 209,025 04 218,709 05 228,872
1 R01 LM05100-01	ALGORITHMS IN MOLECULAR BIOLOGY	01 151,084 02 149,574 03 155,284

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
1 R01 LM05102-01	COMPARATIVE MODELING OF PROTEIN STRUCTURE	01 84,200 02 85,124 03 89,283
1 R01 LM05104-01	AN INTELLIGENT BIOMEDICAL ASSISTANT	01 114,878 02 93,473 03 97,212
1 R01 LM05110-01	ALGORITHMS FOR ANALYZING BIOSEQUENCE DATA	01 83,914 02 87,200 03 90,618
1 R01 LM05112-01	PARALLEL MACROMOLECULAR STRUCTURE RETRIEVAL ALGORITHMS	01 91,429
1 R01 LM05114-01	BIOMOLECULAR STRUCTURE AND FUNCTION FROM NEURAL NETWORKS	01 99,797 02 98,849
1 R01 LM05115-01	MACHINE LEARNING APPROACHES TO PROTEIN STRUCTURE PREDICT	01 133,498 02 136,025 03 148,016
1 R01 LM05118-01	ALGORITHMS FOR MACROMOLECULAR STRUCTURE ANALYSIS	01 83,003 02 89,693 03 96,954
1 R01 LM05121-01	COMPUTER CLASSIFICATION OF BIOLOGICAL SEQUENCES	01 80,253 02 64,547
1 R01 CA50851-01	UNIX-BASED SOFTWARE FOR 3D DISPLAY AND ANALYSIS	01 324,480 02 203,558 03 213,736 04 224,423 05 235,644

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE  
APPLICATIONS APPROVED BY COUNCIL  
(ARRANGED NUMERICALLY BY PROGRAM)  
PROG. CLASS: COUNCIL DATE: MAY 1989

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
1 R29 LM04919-01A1	JOINT HUMAN-COMPUTER COGNITION SYSTEM FOR PRENATAL CARE	01A1 90,424 02 74,198 03 68,752 04 65,332 05 51,291

**BOARD OF REGENTS**

**SUBCOMMITTEE ON PRICING OF NLM SERVICES**

June 5, 1989

1:00 to 2:00 p.m.

**A T T E N D E E S**

**Subcommittee Members Present:**

Dr. Lois E. DeBakey, Consultant

**Unable to Attend:**

Mr. H. Robert Cathcart  
Mr. Joseph Howard  
Ms. Karen Renninger

**NLM Staff Present:**

Mr. Kent A. Smith, Deputy Director  
Mrs. Lois Ann Colaianni, Associate Director, LO  
Dr. Richard K. C. Hsieh, Director, International Programs  
Mr. Charles Kalina, Special Project Officer, OD  
Mr. Sheldon Kotzin, Chief, Bibliographic Services Division, LO  
Ms. Fredette West, Chief, Office of Financial Management, OD

**Pricing Philosophy**

1. Medical information is a public good and must be easily accessible.
2. Equal access at equal prices to all domestic users--no differential pricing by type of user.
3. Costs should to the degree possible be shared with the biomedical community.

**Setting Prices**

1. NLM Act (PL 84-941) empowers the Secretary, with the advice of the Board of Regents, to charge or not to charge for NLM services. Board has recommended charging so as to prevent wasteful demands on NLM computer systems, but also embraced reasonable costing so as not to deter access.
2. Board policy is to recover total access costs across all MEDLARS-related products and not by individual product. This also ensures access to esoteric but important databases are not compromised by excessive fees.



3. Recovering access costs is consistent with OMB Circular A-130 which calls for recovering the costs of dissemination.

#### **Cost Sharing**

1. The Board and the U.S. Congress have consistently taken the position that the cost of generating the databases (acquisitions, indexing, etc.) should be borne through the NLM appropriation, but the users should incur the full cost to access the system.
2. Access cost includes telecommunications, computer usage, network management, training and related publicity materials, accounting and billing, and associated administrative overhead costs.

#### **Foreign Access**

1. Foreign users access includes that provided directly by NLM, domestic tape leasers (BRS, DIALOG, etc.) or foreign tape users.
2. Foreign users pay in addition to the full access cost a proportional share of NLM's database creation costs on the premise they are non-U.S. taxpayers.

#### **Charging Mechanisms and Prices**

1. Online systems are charged for through an algorithm that consists of a) connect time, b) amount of data retrieved, and c) computer resources.
2. Tapes are leased to vendors and they pay an annual minimum charge; usage charges of normally \$3-4 per hour and \$.01 per citation are applied against the minimum.

BOARD OF REGENTS

LISTER HILL CENTER SUBCOMMITTEE MEETING

June 5, 1989

1:00 to 2:15 p.m.

A T T E N D E E S

Subcommittee Members Present:

Dr. Edward A. Feigenbaum, Chair  
Dr. Faye G. Abdellah  
Dr. Ronald E. Cape  
Dr. Mary E. Clutter  
Dr. Alvy R. Smith  
Brig. General Michael J. Torma (Observer)

NLM Staff Present:

Dr. Donald A. B. Lindberg, Director  
Dr. Harold M. Schoolman, Deputy Director for Research and Education  
Dr. Daniel R. Masys, Director, Lister Hill National Center for  
Biomedical Communications  
Mr. Earl Henderson, Deputy Director, Lister Hill National Center for  
Biomedical Communications

Dr. Masys presented a review of the current projects ongoing within the Lister Hill Center in the research areas of Computer Science, Image and Communications Engineering, and Health Professions Education. Copies of the 1989 R & D program booklet were distributed. Discussion focused on issues of recruitment of new personnel and strategies to compensate for the low salary levels offered by the government for entry-level professionals in computer science-related disciplines.

BOARD OF REGENTS

EXTRAMURAL PROGRAMS SUBCOMMITTEE MEETING

June 5, 1989

2:00 to 3:30 p.m.

ATTENDEES

Subcommittee Members Present:

Dr. Ann K. Randall, Chairman  
Dr. Jay P. Sanford  
Brig. General Michael J. Torma

Unable to Attend:

Dr. Steven C. Beering  
Dr. Don E. Detmer  
Ms. Nina W. Matheson

NLM Staff Present:

Dr. Jeanne Brand, Chief, International Programs, Branch, EP  
Mr. Arthur J. Broering, Acting Associate Director, 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. Andrea Epstein, Grants Assistant, EP  
Mrs. Frances E. Johnson, Program Officer, EP  
Dr. M. Kathleen Nichols, Grants Management Specialist, EP

NLM BOARD OF REGENTS

PLANNING SUBCOMMITTEE MEETING

June 5, 1989

4:00-5:00 p.m.

ATTENDEES

Subcommittee Members Present:

Ms. Karen Renninger  
Dr. Lois E. DeBakey (Consultant)

Unable to Attend:

Dr. Edward N. Brandt, Jr.  
Dr. Mary E. Clutter  
Dr. Don E. Detmer  
Ms. Nina W. Matheson

NLM Staff Present:

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

The Outreach Planning Panel, advisory to the Board of Regents Subcommittee on Planning, has completed its report, which was sent to the Board for review before its June meeting. The Panel was chaired by Dr. Michael DeBakey and met three times on November 21-22, 1988, January 13-14, 1989, and March 2-3, 1989.

The charge to the Panel stressed that the plan must address the need to increase the awareness of prospective users, suggest strategies for removing obstacles to access, and propose mechanisms to insure the maximum relevance of NLM's diverse array of information products and services.

The Panel's major findings fall into four categories, each with specific recommendations:

- The Individual and the Regional Medical Library (RML) Network.
- Strengthening Hospital Access to National Information Sources.
- Training in Health Information Management.
- A New Generation of Information Products and Services.

The Panel Report concludes with a summary resource table outlining both the additional fiscal and staff requirements to carry out the Panel's recommendations. It recommends an additional \$26 million and 17 FTEs for FY 1990.

The Subcommittee discussed its recommendations for the Board of Regents, including endorsing the Panel Report, recommending a change in the name of the Regional Medical Library Network, thanking staff for their participation in the development of the report, and reflecting in the report the Panel's intent to expand access to information for underserved minority health professionals.

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

A G E N D A

92nd Meeting of the

BOARD OF REGENTS

9:00 a.m., October 5-6, 1989

Board Room  
Mezzanine of  
National Library of Medicine

MEETING OPEN: All day on October 5 and from 9:00 a.m. to 10:45 a.m. on October 6.  
MEETING CLOSED: From 10:45 a.m. to adjournment on October 6 for the review of grant applications.

1. CALL TO ORDER AND INTRODUCTORY REMARKS Dr. Don E. Detmer
  
2. REMARKS BY THE ASSISTANT SECRETARY FOR HEALTH AND ACTING SURGEON GENERAL Dr. James O. Mason
  
3. REMARKS BY THE ACTING DIRECTOR, NIH Dr. William F. Raub
  
4. CONSIDERATION OF JUNE MINUTES Dr. Don E. Detmer  

TAB I  
(Agenda Book)
  
5. FUTURE MEETING DATES

Winter Meeting: Jan. 18-19, 1990 (Th-F)--CONFIRMED  
Spring Meeting: June 7-8, 1990 (Th-F)--CONFIRMED  
Fall Meeting: September 27-28, 1990 (Th-F)--PROPOSED  
(Previously proposed dates were 10/4-5/90.)

(Subcommittees meet the day before the regular Board meeting.)

PLEASE NOTE:  
(Potential conflict  
w/Oct. 1990 dates.)

NIAID Council Fall Meeting, 9/24-25/90,  
Bethesda, MD  
American Public Health Assoc. (APHA)  
Annual Meeting, 9/30-10/4/90, New York, NY  
National Academy of Engineers Annual Meeting,  
10/1-4/90, Washington, DC  
Association of Academic Health Centers (AAHAC)  
Annual Meeting, 10/3-6/90, Naples, FL  
American Colleges of Surgeons Annual Meeting,  
10/7-12/90, San Francisco, CA  
Institute of Medicine Annual Meeting,  
10/8-9/90, Washington, DC  
The Society for Medical Decision Making,  
Annual Meeting, 10/11-14/90, Boston, MA

Potential conflict  
w/Oct. 1990 dates  
continued:

Assoc. of Research Libraries, Semi-annual  
Meeting, 10/16-19/90, Washington, DC  
Assoc. of American Medical Colleges (AAMC)  
Annual Meeting, 10/20-25/90, San Francisco

COFFEE BREAK

- |     |   |                |  |
|-----|---|----------------|--|
| 6.  | REMARKS BY THE DIRECTOR, NLM  | <u>TAB II</u>  | Dr. Donald A. B. Lindberg  |
| 7.  | ELECTRONIC IMAGING PANEL REPORT   | <u>TAB III</u> | Dr. Elliot R. Siegel<br>Dr. Donald W. King<br>Dr. Daniel R. Masys                    |
|     | Discussion  |                | Board Members  |
|     | LUNCHEON CATERED IN CONFERENCE ROOM "B"   | 12:00 - 1:00   |  |
| 8.  | CONFERENCES OF THE FEDERATION OF AMERICAN<br>SOCIETIES FOR EXPERIMENTAL BIOLOGY (FASEB) | <u>TAB IV</u>  | Dr. Donald W. King<br>Dr. Lois E. DeBakey,<br>Discussant                             |
|     | Discussion  |                | Board Members  |
| 9.  | CRITICAL INCIDENT TECHNIQUE (CIT)<br>STUDY RESULTS                                      | <u>TAB V</u>   | Dr. Elliot R. Siegel<br>Dr. Sandra Wilson  |
|     | Discussion  |                | Board Members  |
| 10. | GRATEFUL MED/MACINTOSH  | <u>TAB VI</u>  | Mr. John Anderson<br>Mr. William Trefzger<br>Dr. Edward A. Feigenbaum,<br>Discussant |
|     | Discussion  |                | Board Members  |
|     | COFFEE BREAK  |                |  |
| 11. | PERMANENT PAPER STATUS REPORT   | <u>TAB VII</u> | Mr. Charles R. Kalina<br>Mr. Gerard Piel<br>Dr. Lois E. DeBakey,<br>Discussant       |
|     | Discussion  |                | Board Members  |

- 12. BIOTECHNOLOGY--PROGRESS ON THE BACKBONE      TAB VIII      Dr. David J. Lipman
- Discussion      Board Members

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

DINNER. . . . . BETHESDA NAVAL OFFICERS' CLUB  
 Cocktails . . . . . 6:30 p.m. Bethesda, Maryland  
 Dinner. . . . . 7:30 p.m. "BRIDGE ROOM"

SPEAKER: Dr. Samuel O. Thier  
 President, Institute of Medicine

TITLE: "A View from the Institute."

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R E C O N V E N E: FRIDAY, October 6, 9:00 a.m., BOARD ROOM

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- 13. REPORT ON AIDS ACTIVITIES AND      TAB IX      Dr. Jack E. Whitescarver
- DEMONSTRATION OF AIDS DATABASES      Dr. Henry M. Kissman
- Discussion      Board Members

- 14. REPORT ON EXTRAMURAL PROGRAMS      TAB X      Mr. Arthur J. Broering
- A. Budget and Funding Plans      Extramural Programs Sub-
- B. Fellowship Applications      committee, Discussants

Discussion      Board Members

COFFEE BREAK

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**MEETING CLOSED FOR THE REVIEW OF GRANT APPLICATIONS, OCTOBER 6, 10:45 A.M.**  
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- 15. REVIEW OF GRANT APPLICATIONS      Dr. Roger W. Dahlen
- RESEARCH      (Workbook)      TAB I
- A. Medical Informatics      Tab A



B. Biotechnology	<u>Tab B</u>	
C. Library and Information Science	<u>Tab C</u>	
RESOURCE	<u>TAB II</u>	
A. Resource Project	<u>Tab A</u>	
B. Resource Improvement	<u>Tab B</u>	
C. IAIMS	<u>Tab C</u>	
PUBLICATION	<u>TAB III</u>	Dr. Jeanne L. Brand
SMALL BUSINESS INNOVATION RESEARCH (SBIR)	<u>TAB IV</u>	Dr. Roger W. Dahlen
DISAPPROVALS	<u>TAB V</u>	
16. ADJOURNMENT		Dr. Don E. Detmer

DEPARTMENT OF HEALTH AND HUMAN SERVICES

NATIONAL INSTITUTES OF HEALTH  
NATIONAL LIBRARY OF MEDICINE

BOARD OF REGENTS  
MINUTES OF THE 92ND MEETING  
OCTOBER 5-6, 1989

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 5-6, 1989

The Board of Regents of the National Library of Medicine was convened for its ninety-second meeting at 9:00 a.m. on Thursday, October 5, 1989, in the Board Room of the National Library of Medicine, Bethesda, Maryland. Dr. Don E. Detmer of the University of Virginia chaired the meeting. In his absence, Ms. Nina W. Matheson took over the chair on October 6. In accordance with P.L. 92-463 and the Determination of the Director, NIH, as announced in the Federal Register on August 18, 1989, the meeting was open to the public from 9:00 to 11:45 a.m. and from 12:30 to 4:45 p.m. on October 5, and from 9:00 to 10:45 a.m. on October 6. The meeting was closed from 11:45 a.m. to 12:30 p.m. on October 6 for the review, discussion, and evaluation of grant applications. A Board roster is enclosed under Attachment A.

**Board members present were:**

Dr. Don E. Detmer, Chair (October 5)  
Dr. Steven C. Beering  
Mr. H. Robert Cathcart (October 5)  
Dr. Mary E. Clutter  
Dr. Ruth M. Davis (October 5)  
Dr. Edward A. Feigenbaum (October 5)  
Mr. Joseph H. Howard  
Dr. James O. Mason (October 5)  
Ms. Nina W. Matheson (Chair, October 6)  
Dr. Jay P. Sanford (October 4)

**Alternates to ex officio members present were:**

Dr. Kathleen A. McCormick, representing Dr. James O. Mason on opening and on October 6.  
Captain Vernon D. Schinski, representing Vice Admiral James A. Zimble.  
Col. Howard E. Fauver, representing Lt. Gen. Frank F. Ledford, Jr.  
Ms. Karen Renninger, representing Dr. John Gronvall.  
Dr. Richard E. Rowberg, representing Dr. James H. Billington  
Brig. Gen. Michael J. Torma, representing Lt. Gen. Monte B. Miller.

**Unable to attend:**

Dr. Ronald E. Cape  
Dr. Alvy R. Smith

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. Dennis Benson, Chief, Information Resources Branch, NCBI  
Dr. Jeanne L. 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 Collaianni, Associate Director for Library Operations  
Dr. George Cosmides, Deputy Director, SIS  
Dr. Roger W. Dahlen, Chief, Biomedical Information Support Branch, EP  
Ms. Becky Lyon-Hartman, RML Program Coordinator, LO  
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, SIS  
Mr. Sheldon Kotzin, Chief, Bibliographic Services Division, LO  
Dr. David J. Lipman, Director, National Center for Biotechnology Information  
Dr. Daniel R. Masys, Director, Lister Hill National Center for Biomedical Communications  
Mr. Robert B. Mehnert, Chief, Office of Inquiries and Publications Management, OD  
Ms. Peri L. Schuyler, Deputy Chief, Bibliographic Services Division, LO  
Dr. Elliot R. Siegel, Assistant Director for Planning and Evaluation, OD  
Ms. Susan Buyer-Slater, Deputy Assistant Director for Planning and Evaluation, OD  
Ms. Patricia Southcomb, Chief, Office of Personnel Management, OD  
Dr. Melvin L. Spann, Chief, Biomedical Information Services Branch, SIS  
Mr. Richard T. West, Chief, Office of Program Planning and Evaluation, EP

**Others Present included:**

Dr. James O. Mason, Assistant Secretary for Health and Acting Surgeon General  
Dr. William F. Raub, Acting Director, NIH  
Dr. Lois E. DeBakey, Professor of Scientific Communications, Baylor College of Medicine -- Consultant to Board of Regents  
Dr. Lindsey Desrochers, Fellow, American Council of Education, University of Virginia, Charlottesville  
Dr. Donald W. King, The Richard T. Crane Professor of Pathology, The University of Chicago  
Mr. Gerard Piel, Chairman Emeritus, Scientific American, New York  
Dr. Duane S. Straub, Director, Biomedical Communications, Naval Health Services and Education Command, Department of the Navy  
Dr. Jack E. Whitescarver, Deputy Director, Office of AIDS Research, NIH  
Dr. Sandra R. Wilson, Senior Research Fellow, American Institute of Research, Palo Alto, CA

## **I. OPENING REMARKS**

Dr. Don E. Detmer, Chairman, welcomed the Regents to the ninety-second meeting of the Board of Regents of the National Library of Medicine. He introduced new members Dr. Ruth M. Davis and Dr. Kathleen A. McCormick, who replaced Dr. Faye Abdellah on the Board as the Surgeon General's alternate of the Public Health Service. He also welcomed consultants Dr. Lois E. DeBakey, Dr. Donald W. King, and Mr. Gerard Piel, and several other visitors on the agenda: Dr. Jack Whitescarver of the NIH Office of AIDS Research, and Dr. Sandra Wilson of the American Institute of Research. Regents unable to attend were Dr. Ronald E. Cape and Dr. Alvy R. Smith. Dr. Detmer will be unable to preside over the meeting on October 6; Ms. Nina W. Matheson will chair that session in his absence.

Dr. Detmer announced that NLM Director, Dr. Donald A. B. Lindberg, had received earlier this week one of the first annual Nathan Davis Awards. This is a prestigious award, sponsored by the American Medical Association, to honor public officials.

## **II. CONSIDERATION OF MINUTES OF PREVIOUS MEETING**

The Regents approved without change the minutes of the June 6-7, 1989, meeting.

## **III. DATES OF FUTURE MEETINGS**

The Board will meet next on January 18-19, 1990. The spring meeting on June 7-8, 1990, was confirmed. The meeting for next fall was set for September 27-28, 1990.

## **IV. REPORT OF THE ASSISTANT SECRETARY FOR HEALTH**

Dr. James O. Mason, HHS Assistant Secretary for Health, and Acting Surgeon General, PHS, reported on several topics of current concern in the Office of the HHS Secretary. He said that both he and the Secretary are pleased that the Public Health Service has moved quickly to develop and implement databases of information about AIDS clinical trials and AIDS drugs in response to the 1988 omnibus health bill. The Secretary asked Dr. Mason to express his appreciation to the NLM for rapidly getting these databases up on the MEDLARS online network. A PHS AIDS Executive Task Force has been created to coordinate PHS efforts on the disease; Dr. Lindberg is co-chairman of the Task Force's Panel on Information Services. Another current national effort relates to the "Year 2000 Objectives." The PHS has a responsibility to provide leadership in establishing health priorities and goals for the nation.

The process to establish goals for 2000 has begun. Similar goals had been set in 1978 for 1990. Many of these targets (there were 226 of them) have not been met, but progress has been made toward many of them. One persistent problem on which there has not been much headway is that of closing the gap between the health of white and minority populations. The process of setting apolitical national objectives has taught us much, however, and we will be much better organized as we focus on 2000. Dr. Mason offered to provide a draft document, "Promoting Health, Preventing Disease: Year 2000 Objectives," to the Board. The PHS is seeking comment on it.

Another topic Dr. Mason discussed is the issue of "medical effectiveness"--measuring patient outcomes. The goal is to change the focus of critical care from an assessment of "processes" to an assessment of "outcomes." President Bush has included \$55 million in his 1990 budget for this activity. There are four components of the project: collecting data (much of it from Medicare and Medicaid); research about on patient outcomes--intramural and extramural; assimilating and disseminating findings; and, working with professional organizations, developing practice guidelines and standards of care. He noted that NLM has been involved in "outcomes" research for some time, having just completed a study of how MEDLINE is used in medical practice based on the "Critical Incident" technique. The last subject of Dr. Mason's remarks was that of the increasing involvement of NIH and the Alcohol, Drug Abuse, and Mental Health Administration (ADAHMA) in the movement to ban the use of animals in research. The general public does not understand how dependent medical research has been on the humane use of animals for medical progress. The medical community has not arrived at the point where it can substitute a computer or a test tube to replace experimental animals. He noted that Rep. Torricelli's bill, the Information Dissemination and Research Accountability Act, would require the NLM to compare all research proposals involving animals with published literature to determine if the proposed research is duplicative and unnecessary. The PHS does not favor this bill. In closing, Dr. Mason said that he is a strong supporter of the National Library of Medicine and he assured the Board that he welcomes their suggestions and advice.

## **V. REPORT OF THE ACTING NIH DIRECTOR**

Dr. William F. Raub reported on the adequacy of the NIH physical plant--including needed expansion, modernization, and continuing maintenance. The driving forces for NIH "Revitalization Projects" are the critical need for additional space (many staff are in rented offices off campus), concerns for safety, and a crucial need to modernize the aging physical infrastructure and facilities. The funds estimated as needed to do all this proposed work are \$1 billion over the next 10 years. This work would allow current NIH activities to go on at about the same level of magnitude and efficiency; it does not portend any dramatic increases. Dr. Raub, who made his presentation using slides, noted that he is making essentially the same report to all NIH Advisory Councils.

## VI. REPORT OF THE NLM DIRECTOR

To preface his report, Dr. Lindberg remarked that the work of the Board is critical to the functioning of the Library and that the sacrifice of personal time and effort on the part of the Regents is appreciated by the staff and medical library community. The role of the Board is much more than ceremonial: in times past, the willingness of the Regents to defend the institution and to "stand in the line of fire" has stood the Library in good stead. He urged the Board, individually and collectively, to seize all appropriate opportunities to let him know their thoughts about issues affecting the Library. One crucial area for the Board is to determine that what NLM is doing is most relevant to its mission--that priorities are set wisely.

Using slides, Dr. Lindberg described the status of the NLM budget. The Fiscal Year 1989 budget closed out on September 30 as \$74.4 million. For FY 1990, the various budgets are as follows: Administration's budget \$78.7 million, the House Appropriations Committee \$83.3 million, and the Senate Appropriations Committee \$80.7 million. There has been no joint action of the House and Senate yet. With the transfer of funds from the Division of Research Resources for medical informatics, under the most optimistic circumstances, the NLM figure would be about \$87.1 million for FY 1990. Dr. Lindberg presented a chart that showed how the budget would be broken out under NLM's two operating authorities--the Medical Library Assistance Act and general 301 authority of the Public Health Act. He showed particularly the budgetary prospects for certain special initiatives--biotechnology, medical informatics, and AIDS information activities. He reported that NLM gained a number of positions because of (1) the creation of the new National Center for Biotechnology Information and (2) special positions related to AIDS activities. In other personnel matters, he announced that Dr. James Ferguson, who was at NLM on a sabbatical, has been appointed to a Special-Expert position. Ms. Patricia Southcomb has been named the Library's new Personnel Officer.

Dr. Lindberg reported that the strong recommendation of the Board of Regents that the NLM be delegated certain grant authorities concerning artificial intelligence and the analysis of nucleic acid and protein sequences has been accepted and implemented by the NIH. This opportunity resulted from the amalgamation of NIH's Division of Research Resources (which originally had the authority) and the Division of Research Services. The amount involved, \$3.9 million, has been transferred to the NLM. On another matter, the NLM Director reported very briefly on steps being taken to apply expert systems to certain Library functions. Dr. Lindberg reported on a matter referred to by Dr. Mason earlier, i.e., the formation of a Panel on AIDS Information Services as part of the PHS Executive Task Force on AIDS. Dr. Lindberg is cochairman of the Panel, which will address the need for information services both for the general public and the scientific/medical community. One of the first problems that must be addressed in setting up effective information services is that of dealing with the poorly organized and formatted information being provided.

The subject of outreach is very high on NLM's agenda. The plan that the Board reviewed, amended, and approved at its last meeting will have to be implemented within the reality of funding at much lower levels than called for in the report. One area that will receive high priority in its implementation is the recommendation that NLM make a special effort to work with historically black colleges and universities to ensure their full participation in NLM's programs. The need for usage information on which to base an outreach plan will be discussed later in this meeting when Drs. Siegel and Wilson present the results of the recently completed Critical Incident Technique Study.

Next, using slides, Dr. Lindberg reported on the results of a review of NIH's research training grants program. Among the issues reviewed were the balance of MD/PhDs, the length of time the MDs are spending in research training (12 months is too short), the levels of stipends, and proposed new research career ladders. He touched also on the topic of the reauthorization of the Paperwork Reduction Act, a subject that has potential serious ramifications for the NLM, especially as it sets information policy and impinges on how NLM information products are priced. Two bills have been introduced. The House bill would increase the authority of the Office of Management and Budget to manage in great detail the operations of Federal agencies; the Senate bill is much broader and permissive in its authority. The last item Dr. Lindberg reported was the National High Performance Computer Technology Act. Dr. Masys, on behalf of NLM, presented testimony to the Senate subcommittee considering the legislation. He told the Subcommittee how computers and computing networks are being used by the Library to store and disseminate medical data and the potential benefits of greater capability and higher speeds in this area. Dr. Lindberg noted that when NLM's long-range planning was begun in 1985, he advised that the planners should assume the existence of telecommunications at one million bits/second to personal desktop computer systems. Such systems have arrived--the National Science Foundation already can provide 1.2 million bits/second capability on its network--and have justified that assumption. Dr. Lindberg noted with pleasure that the Administration is supporting the legislation.

## VII. ELECTRONIC IMAGING PANEL REPORT

Dr. Elliot R. Siegel, NLM Assistant Director for Planning and Evaluation, reviewed the planning process that is now under way to develop a plan for a biomedical image library. The planning panel, chaired by Dr. Donald King, and consisting of medical educators, imaging experts in anatomy and radiology, users in the surgical community, computer scientists, and two representatives of the Board (Dr. Smith and Dr. Clutter) met in June at NLM. The charge to the panel, which grew out of the Long-Range Plan, was to provide advice about whether and how the Library should move from exploring image libraries to actually building them and making them available. NLM wanted to know whether there was a sufficient demand for such databases within the medical community to warrant undergoing the expense and effort of building them. What standards for data exchange needed to be developed? Should the NLM undertake the 3-D "Visible Human" project, as had been proposed by an earlier workshop? (This project would require a male and female cadaver for photographic and electronic CT and MRI scanning from head to toe,



with resulting high-quality images of each "slice".) Dr. Siegel briefly described the presentations made at the first Imaging Panel meeting about the current state of the art. Resulting discussion disclosed that there was not a unanimity of opinion about what NLM's role in this should be. After the meeting in June, a "straw-man" report was drafted and sent to the participants. Unexpectedly, at the Panel's second meeting, much of the disagreement resolved itself. A second draft report is now in preparation and should be presented to the Board of Regents for review in January, 1990.

#### **VIII. FASEB CONFERENCES**

Dr. Donald W. King, Professor of Pathology at the University of Chicago and consultant to NLM, reported to the Board on a project to provide access to MEDLARS databases to the approximately 2000 young scientists attending 16 FASEB Summer Research Conferences. (FASEB is the Federation of American Societies for Experimental Biology.) One or two individuals from each conference was brought early in June to NLM and trained in the use of Grateful Med/MEDLINE, briefed on the Online Mendelian Inheritance in Man (OMIM) database, and introduced to the activities of the National Center for Biotechnology Information. Dr. King described how the attendees at the summer conferences were successfully introduced to Grateful Med/MEDLINE and the other services. Conducting similar programs over the next five years, Dr. King said, would result in reaching every "productive" graduate student in the nation. Commenting on the project, Dr. Lois DeBakey agreed that it had great potential for outreach. She suggested that NLM might encourage the Regional Medical Libraries to assist in the arrangements and training; this would relieve the burden on the NLM's staff. The concept would be as productive for clinical groups as for research groups, she added, and would help to overcome computerphobia on the part of medical students and residents. She read a highly laudatory unsolicited letter from one of the FASEB participants.

#### **IX. PERMANENT PAPER STATUS REPORT**

Mr. Charles Kalina, NLM Special Projects Officer, recapitulated NLM's efforts to encourage the use of acid-free, permanent paper within the medical publishing industry in order to stop much of the potential future problem of preservation of publications at its source. Acid-free paper lasts for hundreds of years; acidic paper begins to self-destruct and crumble to dust within a few score years. Acid-free paper is now increasingly available, at prices competitive with acidic paper in most grades. Two years ago the Library formed the Permanent Paper Task Force, cochaired by Mr. Gerard Piel, Chairman Emeritus of Scientific American, and Dr. Lois DeBakey. The expertise available in the Task Force has made it possible for NLM to become a recognized leader and focus for a growing number of national efforts in this area.

One concern of the Task Force was that the U.S. lacks a national policy for preservation of the printed record; this situation has improved with increasing Congressional interest--the Senate on July 31, 1989, unanimously passed a resolution to establish a national policy on permanent paper. A companion resolution is pending in the House. Another concern is the availability of a realistic standard for acid-free paper; a committee of the National Information Standards Organization (chaired by Betsy Humphreys of NLM) has completed the drafting of such a standard. An important recommendation of the Task Force was that each publication printed on permanent paper should carry a statement that it uses permanent paper, not only to forestall unnecessary efforts at preservation in the future, but also to give recognition to current users and to motivate potential users. Beginning in 1990, the National Library of Medicine will identify those of the 3500 journals indexed in MEDLINE and Index Medicus that are printed on acid-free paper and that also carry a notice to that effect in each issue. Journals meeting these criteria will be clearly marked in NLM's published listings of journals and SERLINE, NLM's online file of serials information. An ongoing survey of acid-free paper use indicates that today, over a third of the domestic titles so indexed are printed on acid-free paper, compared to one tenth of them at the time the Permanent Paper Task Force was organized. The presence of an identifying notice in such journals increased from one percent then to twenty-five percent now.

Mr. Gerard Piel recounted briefly the history of the introduction of acid into the papermaking process in the nineteenth century and the dawning on scholars that it represents a real threat to the nation's published heritage. He noted that the first issue of the Scientific American published under his leadership in 1948 is now embrittling. The task that confronts us is not just to save our past; however, it is to apply preventive medicine so that future generations are spared the preservation problem. He noted that, paradoxically, the widespread use of computers in our society has been accompanied by great increases in the consumption of paper. Following Mr. Piel's remarks, Dr. Lois DeBaKey said it is remarkable how far we have come in the two and one-half years since NLM began the campaign to encourage the use of permanent paper. The modest goals originally set by Dr. Lindberg are being met, but more must be done. She encouraged the Regents to inquire when they submit books and articles for publications whether they will be on acid-free paper, and possibly make this one of their criteria in selecting a publisher.

## **X. CRITICAL INCIDENT TECHNIQUE STUDY RESULTS**

Dr. Elliot Siegel described the recently completed Critical Incident Technique Study, an in-depth investigation of how practitioners use MEDLINE and the benefits of its use for the professional practice of medicine. The study was done by the Library with the assistance of Dr. Sandra Wilson and the American Institutes for Research. Two

Regional Medical Libraries also were involved. Dr. Siegel first briefly described the technique itself, which in NLM's case involved detailed inquiries about successful and unsuccessful uses of NLM's databases in actual practice and the outcomes in terms of the patients involved. An important purpose of the study is to create an inventory--a taxonomy--of the antecedent conditions and the outcomes of MEDLINE searches. The study involved lengthy telephone interviews with 552 health professionals, both those who did their own searching and those who had their searches done by someone else. Dr. Siegel described how the sample was selected, and he then described how a typical interview was carried out--what questions were asked and how the responses were followed up by the interviewer. Approximately 1200 "incidents" were elicited by the interviews.

Following Dr. Siegel's presentation, Dr. Sandra Wilson of the American Institute of Research described how the data resulting from the survey were used to develop the "taxonomies." Four primary "frames of reference" emerged: why the information was needed from MEDLINE; why the individual used MEDLINE as the source for that information; what the impact was on the physician's medical decision-making; and the impact on the outcomes of the activity. Using slides, Dr. Wilson described how the subgroupings emerged as information on the incidents was amassed. The goal was to arrive at an outline, or taxonomy, that preserves the essential detail of the 1100 reports, arriving at a logical, manageable outline to communicate the essence of the individual reports. Using slides, she presented the findings in the various broad categories. The first category has to do with why the information was needed (patient care, research, teaching, etc.), and includes subcategories under the major headings (for example, under "patient care" was listed diagnosis and etiology, treatment and prognosis, etc.), and even more specific categories under those. She similarly characterized the other major categories--for example, why did the physician use an online search? More specifically, why MEDLINE? Even more specifically, why Grateful Med? And so forth. Ultimately, Dr. Wilson said, we hope to gain from the study a greater understanding of the impact of MEDLINE (and Grateful Med) on patient care. The study clearly found that information gained from MEDLINE had an impact on decision-making in all areas of the taxonomy. In patient care, for example, there were repeated instances where this information was key to enabling the physician to use the most appropriate diagnostic tests, to arrive at a differential diagnosis, to develop and implement a treatment plan, and to maintain an effective physician-patient relationship. This usefulness was repeated in the other major categories.

Wrapping up the CIT presentation, Dr. Siegel offered the following overall conclusions from the study: (1) MEDLINE is a convenient and efficient way to get answers to questions; (2) using MEDLINE does make a difference in patient care and research; (3) MEDLINE is used frequently for patient care; and (4) although there were some few incidents in which MEDLINE was ineffective, the inescapable overall conclusion is that MEDLINE is effective. Dr. Siegel said that as a result of the study we now have a much better understanding of who our users are and

how the system is used, and the effects of having obtained information from MEDLINE. These findings can be applied in a number of areas: how we approach training for users; how we might enhance MEDLINE and Grateful Med; what new products and services are needed; documenting cost savings attributable to using MEDLINE; and, finally, how we can most effectively approach health professionals to make them aware of the system and its benefits.

## **XI. BIOTECHNOLOGY INFORMATION**

Dr. David Lipman, Director of NLM's National Center for Biotechnology Information (NCBI), brought the Board up to date on the development of a core or "backbone" sequence database. The project seeks to develop a database that will be able to answer the questions molecular biologists have. Dr. Lipman explained how biologists seek to traverse the links between amino acid sequences, DNA sequences, and genetics--their questions cut across all. Today's databases are compartmentalized so that it is difficult to formulate even the most common questions. In addition, there is information in MEDLINE that is not in any of those other sources. To be able to integrate all this information is critical for continued progress in molecular biology. Using slides, Dr. Lipman presented several examples of the kinds of questions that are frequently asked. He emphasized that the project to create the backbone database is a collaborative effort within the NLM, involving extensive work with staff in Library Operations. A new MeSH heading has been implemented, MOLECULAR SEQUENCE DATA, and is now being used in indexing articles. NCBI staff now get a tape containing MEDLINE data for these articles, reformat and put this information into a relational database, and the records are then annotated with sequence identifiers and standard gene and organism names. The sequences are then keyed into the records and the database is ready to be distributed. NCBI's goal is to have 85 percent of such records entered within a month of the publication day. The system is almost completely in place and sequences will start to be entered within a matter of days.

## **XII. REPORT ON AIDS-RELATED ACTIVITIES**

Dr. Jack E. Whitescarver, Deputy Director of the NIH Office of AIDS Research (OAR), provided a few recent statistics about the AIDS "pandemic" and then described the organization and role of the NIH AIDS office. The OAR is directed by Dr. Anthony Fauci. There are 106,000 reported cases of AIDS in the U.S. as of last August; the mortality rate is 50 percent. Internationally, the figure is over 150,000. He presented figures about the trends in the composition of the AIDS-infected population--gay, heterosexual, pediatric, and IV drug-using. The overall trend is toward heterosexual transmission. NIH has put a major emphasis on pediatric-related studies. Using slides, Dr. Whitescarver showed how the PHS AIDS effort is organized. A PHS Executive Task Force on AIDS, made up of agency heads and AIDS coordinators from each agency, has been established. He outlined how

each major facet of the AIDS effort has a lead agency (e.g., NIH is the lead agency for vaccine development). There are three special panels, including the one for information services cochaired by Dr. Lindberg. Within NIH, the OAR and its newly chartered advisory group--the NIH AIDS Program Advisory Committee (APAC)--establish policy for the NIH Director. The OAR also works closely with the PHS Executive Task Force and coordinates the work of an NIH AIDS Executive Committee, made up of a representative from each NIH component. The OAR has a budget of \$900,000 and 18 staff members. One of its primary functions is to work with the individual institutes and to develop the overall NIH AIDS-related budget. OAR also works closely with AIDS-related interest groups around the nation to involve them in decision-making. Dr. Whitescarver talked briefly about international aspects of the AIDS research coordination. This is a sensitive issue; we have a policy of not doing in any other country what we have not already tried in the U.S. There are also international research training efforts sponsored by several NIH components.

The NIH AIDS research is focusing on five areas: epidemiology and natural history, the etiologic agent, pathogenesis, therapeutics, and vaccine development and evaluation. He noted that basic science research related to AIDS benefits many of the other diseases, particularly immunological diseases. The PHS 1990 budget has \$1.6 billion for all AIDS-related activities; NIH has 47 percent of that total. Dr. Whitescarver presented some details on how the NIH AIDS budget has grown and how it is apportioned among the various NIH components and between intramural and extramural research. He spoke briefly about the 1991 budget, which is not yet final.

Following Dr. Whitescarver's presentation, Dr. Henry Kissman, NLM Associate Director for Specialized Information Services (SIS), introduced to the Board of Regents two new databases on NLM's MEDLARS online network: AIDSTRIALS and AIDSDRUGS. The Health Omnibus Programs Extension Act of 1988 called for the establishment of a databank of information on clinical trials and treatment for AIDS. The two new databases are the PHS response to that mandate. The content of AIDSTRIALS and AIDSDRUGS is provided through the cooperation of two other PHS components: the National Institute of Allergy and Infectious Diseases, which provides information about NIH-funded safety and efficacy trials, and the Food and Drug Administration, which provides information on privately sponsored experimental tests of the efficacy of agents being used to treat AIDS. Using slides, Dr. Kissman described the contents of the two databases and outlined how the information flows into them. Gale Dutcher of SIS then did several online searches of AIDSLINE and AIDSDRUGS.

### **XIII. GRATEFUL MED/MACINTOSH**

Mr. John Anderson, NLM Director of Information Services, and Mr. William Trefzger of the MEDLARS Management Section, demonstrated the new Macintosh version of the Grateful Med software. Grateful Med, which became available in 1986 for IBM PC and compatible microcomputers, is a

user-friendly "front-end" system for direct and easy access to MEDLINE and other NLM databases. More than 17,000 copies of the software have been sold, primarily to individual health professionals. It represents the fastest growing segment of NLM's online network. The new Macintosh version is available from the National Technical Information Service at the same cost as the IBM version (\$29.95).

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MEETING CLOSED FOR THE REVIEW OF GRANT APPLICATIONS, OCTOBER 6, 11:45 A.M.  
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#### **XIV. 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 applications review, the statement noting that they had not participated in the discussion of any application which presented a conflict of interest.

The Board reviewed 46 applications, requesting \$13,270,764 and recommended for approval 31 applications in the amount of \$8,559,533 for the total years requested. Thirteen applications in the amount of \$3,863,882 were disapproved. Two applications in the amount of \$369,705 were deferred. 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 June meeting were considered by the Board's Extramural Programs Subcommittee and noted and concurred with by the Board of Regents.

#### **XV. ADJOURNMENT**

The meeting was adjourned at 12:30 p.m. on Friday, October 6, 1989.

\* \* \* \* \*

(Extramural Programs Subcommittee under Attachment B)  
Wednesday, October 4, 1989, 2:00 - 3:30 p.m.  
(Research and Development and Planning Subcommittees under Attachment C)  
Wednesday, October 4, 1989, 3:30 - 5:00 p.m.

Thursday and Friday, October 5 and 6, 1989  
(Full Board of Regents)

\* \* \* \* \*

ACTIONS TAKEN BY THE BOARD OF REGENTS

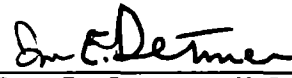
1. The Board concurred with recommendations of the Extramural Programs Subcommittee. Grant applications for approval are listed in the summary actions. (Attachment D)

\* \* \* \* \*

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

 11/15/89

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

 Nov. 27, 1989

Don E. Detmer, M.D. (Date)  
Chairman

## BOARD OF REGENTS OF THE NATIONAL LIBRARY OF MEDICINE

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Board of Regents Roster (Continued)

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**TORMA, Michael J., Brig. Gen., USAF, MC**  
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**EXECUTIVE SECRETARY**

**LINDBERG, Donald A. B., M.D.**  
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B O A R D O F R E G E N T S

EXTRAMURAL PROGRAMS SUBCOMMITTEE MEETING

October 4, 1989

2:00 to 3:30 p.m.

A T T E N D E E S

Subcommittee Members Present:

Dr. Steven C. Beering  
Ms. Nina W. Matheson  
Dr. Jay P. Sanford

Unable to Attend:

General Michael J. Torma

NLM Staff Present:

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

BOARD OF REGENTS

RESEARCH AND DEVELOPMENT AND PLANNING SUBCOMMITTEE MEETING

October 4, 1989

3:30 to 5:00 p.m.

ATTENDEES

Research and Development Subcommittee Members Present:

Dr. Edward A. Feigenbaum, Chair

Unable to Attend:

Dr. Ronald E. Cape  
Dr. Mary E. Clutter  
Dr. Alvy R. Smith

Planning Subcommittee Members Present:

Dr. Don E. Detmer, Chair  
Ms. Karen Renninger  
Ms. Nina W. Matheson

NLM Staff Present:

Dr. Donald A. B. Lindberg, Director  
Dr. Harold M. Schoolman, Deputy Director for Research and Education  
Dr. Daniel R. Masys, Director, Lister Hill National Center for  
Biomedical Communications  
Mr. Earl Henderson, Deputy Director, Lister Hill National Center for  
Biomedical Communications  
Dr. Dennis Benson, Chief, Information Resources Branch, NCBI

A combined meeting of the Planning and the Research and Development  
Subcommittees convened at 3:30 p.m.

Dr. Masys presented a summary of the discussions and recommendations of  
the September 21 meeting of the Board's Planning Subcommittee on Image  
Libraries. The panel unanimously recommended that NLM proceed with the  
Visible Human Imaging Project as an initial focal point for issues such  
as image representation standards, exchange formats, and rendering  
standards. A full report of the planning panel's recommendations will  
be presented to the Board of Regents during the January 1990 meeting.

Dr. Benson presented the National Center for Biotechnology's (NCBI)  
plans and progress in implementing a "backbone" molecular sequence  
database. He noted that the necessary support contracts were in the  
final stages of the award process and that the first data entries into  
the new database are expected within two months. Dr. Benson also  
reviewed the new personnel additions to the NCBI and ongoing plans for  
a "software toolkit" for molecular biology data management systems.

After brief discussions and questions by the subcommittee members, the  
meeting was adjourned at 5:00 p.m.

APPLICATIONS APPROVED BY COUNCIL  
(ARRANGED NUMERICALLY BY PROGRAM)  
COUNCIL DATE: SEPT./OCT. 1989  
INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
1 G07 LM05025-01A1	MEDICAL LIBRARY RESOURCE IMPROVEMENT	01A1 7,285
1 G07 LM05048-01	MEDICAL LIBRARY RESOURCE IMPROVEMENT	01 66,289
1 G07 LM05078-01	MEDICAL LIBRARY RESOURCE IMPROVEMENT	01 426,600
1 G07 LM05083-01	MEDICAL LIBRARY RESOURCE IMPROVEMENT GRANT	01 4,052
1 G07 LM05084-01	MEDICAL LIBRARY RESOURCE IMPROVEMENT	01 3,891
1 G07 LM05087-01	MEDICAL LIBRARY RESOURCE IMPROVEMENT	01 18,398
1 G07 LM05129-01	MEDICAL LIBRARY RESOURCE IMPROVEMENT	01 4,000

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

COUNCIL DATE: SEPT./OCT. 1989

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
1 G08 LM04948-01A1	LIBRARY MICROCOMPUTER LABORATORY EXPANSION	01A1 166,795
1 G08 LM04989-01A1	IAIMS PLANNING-NLM RESOURCE GRANT PROGRAM	01A1 119,010 02 125,363
1 G08 LM05079-01	IAIMS PLANNING FOR THE YALE SCHOOL OF MEDICINE	01 71,844 02 77,411
1 G08 LM05105-01	FLIS (LIS USERS GROUP) PLANNING & DEVELOPMENT	01 145,415 02 123,222
1 G08 LM05127-01	LUIS NETWORK EXPANSION FOR UFHSC LIBRARY (BORLAND DIV)	01 46,580

APPLICATIONS APPROVED BY COUNCIL  
(ARRANGED NUMERICALLY BY PROGRAM)  
COUNCIL DATE: SEPT./OCT. 1989  
INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE  
PROG. CLASS:

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
9 P41 LM05205-06	MOLECULAR BIOLOGY COMPUTER RESEARCH RESOURCE	06 488,619 07 479,219 08 533,919 09 549,319 10 588,619

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
1 R01 LM049333-01	PUBLICATION OF DROSOPHILA GENETIC STOCK LIST	01 32,378
3 R01 LM04957-01S1	SYMBOLIC SIMULATION OF DNA METABOLISM	01S1 67,164 02 58,475
1 R01 LM05007-01A1	INDEXING OF ELECTRONIC MEDICAL IMAGE DATABASE	01A1 146,627 02 157,521 03 169,228
1 R01 LM05042-01A1	PARASITIC INFECTIONS OF THE EYE	01A1 22,200 02 2,000 03 12,000
1 R01 LM05080-01	DATABASE DESIGN FOR GENOMIC INFORMATION RESOURCES	01 318,552 02 333,825 03 349,834 04 366,617 05 384,210
1 R01 LM05081-01	DUALS SECONDARY REVIEW: HL DETERMINING THE INFORMATION NEEDS OF CARDIOLOGISTS	01 138,511 02 57,004
1 R01 LM05124-01	COMPENDIUM OF FLUORESCENT PROBES	01 182,532 02 119,314 03 125,703
1 R01 LM05125-01	A METHOD TO TEST DIAGNOSTIC DECISION SUPPORT SOFTWARE	01 90,785 02 91,700 03 35,657

APPLICATIONS APPROVED BY COUNCIL  
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 PROG. CLASS: COUNCIL DATE: SEPT./OCT. 1989  
 INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
1 R01 LM05132-01	ENDOSCOPIC SIMULATION CONCEPT PROTOTYPE	01 83,328 02 38,084
1 R01 HL44120-1	DUALS SECONDARY REVIEW: LM TRUE VOLUME VISUALIZATION OF MEDICAL DATA	01 179,027
1 R01 HS06125-01A1	DUALS SECONDARY REVIEW: LM VISUAL CUES AND PHYSICIANS JUDGMENTS IN HEART DISEASE	01A1 113,465 02 91,546



APPLICATIONS APPROVED BY COUNCIL  
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 PROG. CLASS: COUNCIL DATE: SEPT./OCT. 1989  
 INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
1 R29 LM04984-01A1	BAYESIAN AND DECISION ANALYTIC EXPERT SYSTEM	01A1 70,921 02 60,300 03 67,019 04 74,027 05 77,728
1 R29 LM05071-01	A BILINGUAL DIAGNOSTIC SYSTEM	01 63,500 02 63,153 03 73,858 04 76,784 05 71,204

APPLICATIONS APPROVED BY COUNCIL  
 (ARRANGED NUMERICALLY BY PROGRAM)  
 INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE  
 COUNCIL DATE: SEPT./OCT. 1989

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
1 R43 LM05137-01	INTERFACES & ALGORITHMS FOR BIBLIOGRAPHIC RETRIEVAL	50,000
1 R43 LM05161-01	DUALS SECONDARY REVIEW: HD USING COMPUTER ANIMATION IN HEALTH EDUCATION VIDEOS	49,790
1 R43 LM05162-01	DUALS SECONDARY REVIEW: AG USING TELEPHONE MEDIA TO PLAN FOR RETIREMENT	35,097
1 R43 CA50104-01A1	DUALS SECANDARY REVIEW: LM RESEARCH STRATEGIES AND META-ANALYSIS OUTCOME	42,021
1 R44 AI28116-2	DUALS SECANDARY REVIEW: LM EVALUATIVE DATABASE ON NONTRADITIONAL AIDS APPROACHES	178,668 188,789