

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

**A G E N D A**

105th Meeting of the

**BOARD OF REGENTS**

9:00 a.m., January 25-26, 1994

Board Room  
Mezzanine of  
National Library of Medicine

MEETING OPEN: 9:00 a.m. to 4:30 p.m. on January 25 and from 9:00 a.m. to adjournment on January 26.

MEETING CLOSED: 4:30 to 5:00 p.m. on January 25 for the review of grant applications.

1. CALL TO ORDER AND INTRODUCTORY REMARKS 9:00- 9:10 Ms. Rachael K. Anderson

2. CONSIDERATION OF SEPTEMBER MINUTES TAB I 9:10- 9:15 Ms. Rachael K. Anderson

3. FUTURE MEETING DATES

Spring Meeting: May 24-25, 1994 (T-W)--CONFIRMED  
Fall Meeting: Sept. 27-28, 1994 (T-W)--CONFIRMED  
Winter Meeting: Jan. 24-25, 1995 (T-W)--PROPOSED

(Subcommittees meet, when necessary, the day before the full Board.)  
(On Jan. 24: Extramural Programs Subcommittee--2:00-3:30 p.m.)

PLEASE NOTE:

(Potential conflicts  
with Jan. 1995 dates.)

American Library Association  
Midwinter Meeting Jan. 20-26, 1995,  
Cincinnati

4. REMARKS BY THE DIRECTOR, NLM TAB II 9:15-10:20 Dr. Donald A.B. Lindberg

a. Budget Tab A  
b. Personnel Tab B  
c. Legislation Tab C  
d. HPCC--Broad Agency Announcement Tab D  
e. 50 Years of American Medicine Tab E

Discussion 10:20-10:40 Board Members

COFFEE BREAK 10:40-11:00

- |     |  |                 |             |   |
|-----|--|-----------------|-------------|---|
| 5.  | OUTREACH PROJECT: NIH HIV/AIDS<br>INFORMATION SERVICES CONFERENCE<br>FINAL REPORT      | <u>TAB III</u>  | 11:00-11:45 | Dr. Elliot Siegel<br>Mr. A. Cornelius Baker   |
|     | Discussion   |                 | 11:45-12:00 | Ms. Naomi C. Booker<br>Col. Jacqueline Morgan<br>Dr. Lois E. DeBakey<br>Other Board Members |
|     | CATERED LUNCHEON   |                 | 12:00- 1:15 |   |
| 6.  | NETMENU AND THE UMLS INFORMATION<br>SOURCES MAP--YALE UNIVERSITY<br>SCHOOL OF MEDICINE | <u>TAB IV</u>   | 1:15- 2:00  | Ms. Betsy Humphreys<br>Dr. Perry L. Miller<br>Dr. Seth Powsner                              |
|     | Discussion   |                 | 2:00- 2:15  | Dr. Carol M. Newton<br>Other Board Members  |
| 7.  | NIH DIRECTOR'S ADVISORY COMMITTEE<br>MEETING   | <u>TAB V</u>    | 2:15- 2:30  | Ms. Rachael K. Anderson   |
| 8.  | BIENNIAL REPORT OF THE BOARD OF<br>REGENTS ( <b>Board action necessary.</b> )          | <u>TAB VI</u>   | 2:30- 2:35  | Dr. Elliot Siegel   |
|     | Discussion   |                 | 2:35- 2:50  | Ms. Rachael K. Anderson<br>Other Board Members  |
| 9.  | REPORT FROM THE TOXICOLOGY<br>AD HOC COMMITTEE   |                 | 2:50- 3:00  | Dr. H. Kenneth Walker   |
|     | COFFEE BREAK   |                 | 3:00- 3:15  |   |
| 10. | HSTAR DATABASE TEST  | <u>TAB VII</u>  | 3:15- 3:45  | Ms. Lois Ann Colaianni<br>Ms. Marjorie Cahn   |
|     | Discussion   |                 | 3:45- 4:00  | Dr. H. Kenneth Walker<br>Other Board Members  |
| 11. | REPORT FROM EXTRAMURAL PROGRAMS  | <u>TAB VIII</u> | 4:00-4:15   | Dr. Milton Corn   |
|     | a. Budget Overview   | <u>Tab A</u>    |             |   |
|     | b. Board Responsibilities for the<br>Grant Program                                     | <u>Tab B</u>    |             |   |
|     | c. Review of Board Operating<br>Procedures ( <b>Board action necessary.</b> )          | <u>Tab C</u>    |             |   |
|     | Discussion   |                 | 4:15-4:30   | Ms. Rachael K. Anderson<br>EP Subcommittee Members<br>Other Board Members                   |

MEETING CLOSED FOR THE REVIEW OF GRANT APPLICATIONS, January 25, 4:30 P.M.

12. REVIEW OF GRANT APPLICATIONS 4:30-5:00 Dr. Roger W. Dahlen  
(Conflict-of-interest instructions in front of workbook for your information and review.)

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

Dinner. . . . .Bethesda Naval Officers' Club "Bridge Room"

Cocktails. . . . . 6:30 p.m.  
Dinner. . . . . 7:30 p.m.

SPEAKER: H. Kenneth Walker, M.D., Member, Board of Regents, and Professor of Medicine, Emory University School of Medicine

TITLE: "Teaching Medicine: 1600 to 1993."

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

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- 13. UPDATE ON PLANNING PANEL ON THE EDUCATION AND TRAINING OF HEALTH SCIENCE LIBRARIANS TAB IX 9:00- 9:20 Dr. Elliot Siegel Ms. Susan M. Buyer
Discussion 9:20- 9:45 Ms. Rachael K. Anderson Ms. Beverly Allen Other Board Members
14. REPORT FROM THE BOARD OF SCIENTIFIC COUNSELORS, NCBI TAB X 9:45-10:05 Dr. Robert T. Sauer
Discussion 10:05-10:15 Dr. Carol M. Newton Other Board Members
COFFEE BREAK 10:15-10:30
15. REPORT FROM THE BOARD OF SCIENTIFIC COUNSELORS, LHNCBC TAB XI 10:30-10:50 Dr. James J. Cimino
Discussion 10:50-11:00 Dr. Robert E. Kahn Other Board Members

- |   |             |                         |
|---|-------------|-------------------------|
| 16. APPOINTMENT OF NOMINATING COMMITTEE FOR BOARD CHAIR         | 11:00-11:05 | Ms. Rachael K. Anderson |
| 17. DISCOVERING HIDDEN TREASURES IN NLM'S HISTORICAL COLLECTION | 11:05-11:35 | Dr. Emilie Savage-Smith |
| 18. ADJOURNMENT   | 11:35       | Ms. Rachael K. Anderson |

**DEPARTMENT OF HEALTH AND HUMAN SERVICES**

**NATIONAL INSTITUTES OF HEALTH**

**NATIONAL LIBRARY OF MEDICINE**

**BOARD OF REGENTS**

**MINUTES OF THE 105TH MEETING**

**JANUARY 25-26, 1994**

**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 <sup>1/2/</sup>  
January 25-26, 1994**

The Board of Regents of the National Library of Medicine was convened for its one-hundred-and-fifth meeting at 9:00 a.m. on Tuesday, January 25, 1994, in the Board Room of the National Library of Medicine, Bethesda, Maryland. Ms. Rachael K. Anderson, Director of the Health Sciences Center Library at the University of Arizona, chaired the meeting. In accordance with P.L. 92-463 and the Determination of the Director, NIH, as announced in the Federal Register on December 17, 1993, the meeting was open to the public from 9:00 a.m. to 3:45 p.m. on January 25 and from 9:00 to 11:50 a.m. on January 26. The meeting was closed from 3:45 to 4:15 p.m. on January 25 for the review, discussion, and evaluation of grant applications. A Board roster is enclosed under Attachment A.

**Board members present were:**

|                                |                       |
|--------------------------------|-----------------------|
| Ms. Rachael K. Anderson, Chair | Dr. Robert E. Kahn    |
| Ms. Beverly E. Allen           | Dr. Carol M. Newton   |
| Dr. Mary E. Clutter (1/25)     | Dr. H. Kenneth Walker |
| Dr. John T. Farrar (1/25)      | Dr. James A. Zimble   |
| Dr. Robert J. Joynt            |                       |

**New members-designate present were:**

|                     |                        |
|---------------------|------------------------|
| Dr. Edwin M. Cortez | Dr. Steven J. Phillips |
|---------------------|------------------------|

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

Ms. Wendy Carter, representing Dr. John T. Farrar.  
Col. Emmanuel Cassimatis, representing Lt. Gen. Alcide M. LaNoue.  
Capt. Bart Hogan, representing Vice Adm. Donald F. Hagen.  
Capt. Kathleen A. McCormick, representing Dr. M. Joycelyn Elders.  
Col. Jacqueline Morgan, representing Lt. Gen. Alexander M. Sloan.

**Board Members Absent:**

|                          |                        |
|--------------------------|------------------------|
| Ms. Naomi C. Booker      | Mr. Joseph H. Howard   |
| Dr. Lawrence J. DeNardis | Dr. Richard E. Rowberg |

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. This procedure applies only to individual discussion of an application and not 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. Michael Ackerman, Acting Associate Director, SIS  
Mr. Fernando Burbano, Director, Information Systems  
Ms. Marjorie Cahn, Special Expert, National Information Center on Health Services  
Research and Health Care Technology, LO  
Mr. Kenneth Carney, Executive Officer, OD  
Ms. Lois Ann Colaianni, Associate Director, LO  
Dr. Milton Corn, Acting Associate Director, EP  
Dr. George J. Cosmides, Deputy Associate Director, SIS  
Dr. Roger W. Dahlen, Chief, Biomedical Information Support Branch, EP  
Mr. Earl Henderson, Deputy Director, LHNCBC  
Dr. Richard Hsieh, Director, International Programs, OD  
Ms. Betsy Humphreys, Assistant Director for Health Services Research Information  
Dr. Lawrence Kingsland III, Assistant Director for Applied Informatics  
Mr. Sheldon Kotzin, Chief, Bibliographic Services Division, LO  
Ms. Eve Marie Lacroix, Chief, Public Services Division, LO  
Ms. Susan N. Levine, Chief, Office of Financial Management, OD  
Dr. David 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  
Dr. Elliot R. Siegel, Associate Director, Health Information Programs Development  
Mr. Richard T. West, Chief, Office of Program Planning and Evaluation, EP

**Others present included:**

Dr. A. Cornelius Baker, Director of Public Policy,  
National Association of People with AIDS, Washington DC  
Dr. James J. Cimino, Assistant Professor of Medicine, Center for Medical  
Information, College of Physicians and Surgeons, Columbia University  
Dr. Perry L. Miller, Director for Center for Medical Informatics and  
Professor of Anesthesiology, Yale University School of Medicine  
Ms. Anne Petruske, "The Blue Sheet"  
Dr. Seth M. Powsner, Associate Professor of Psychiatry, Yale University  
School of Medicine  
Dr. Emilie Savage-Smith, Welcome Unit for the History of Medicine, Oxford,  
United Kingdom

## **I. OPENING REMARKS**

Ms. Rachael Anderson, Chair, welcomed the Regents and guests to the 105th meeting of the Board of Regents of the National Library of Medicine. She introduced two new Regents-designate, Edwin M. Cortez, Ph.D., and Steven J. Phillips, M.D.

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

The Regents approved the minutes of the September 30-October 1, 1993, meeting, without change.

## **III. REPORT FROM THE DEPARTMENT OF VETERANS AFFAIRS**

John T. Farrar, M.D., Acting Undersecretary of the Department of Veterans Affairs, reported that the VA and the NLM have similar interests in a number of areas. One of these is computer networks, another is the computerized patient record. The VA is interested in working with other Federal agencies (including the NLM) and private organizations in pursuing both. NLM Director, Donald A. B. Lindberg, M.D., commented that Ms. Wendy Carter, the head of the VA's library programs, was a valuable ex officio member of the Board of Regents. Dr. Lindberg said that Dr. Farrar recently wrote to the High Performance Computing and Communications Office asking that the VA become a member of the HPCC interagency team. The VA has been granted "visitor status" in the HPCC effort as a precursor to full membership.

## **IV. DATES OF FUTURE MEETINGS**

The Board will meet next on May 24-25. The next fall meeting will be September 27-28. The proposed dates of January 24-25, 1995, were accepted and confirmed for the next winter meeting.

## **V. REMARKS BY THE NLM DIRECTOR**

Dr. Lindberg reported that, although overall NIH is facing what is essentially a flat budget for FY 1994, a few individual programs are faring better. High Performance Computing and Communications, in which NLM has a prominent role, is one such exception. Although NLM's budget is up about 25 percent, Library Operations--NLM's service operation--is about \$4 million under what would be required to maintain a "current service" level. In addition to increases for HPCC, NLM has earmarked increases for information activities relating to both health services research and to AIDS. Dr. Lindberg briefly described NLM's expanded programs in HPCC and health services research. There will be a presentation and



press briefing later in this meeting about NLM's plans to provide free access to its AIDS-related databases. In the area of personnel, Dr. Lindberg reported that as part of a government-wide effort to reduce the number of Federal employees, the Library's ceiling for FTEs ("full-time equivalents") is being substantially reduced. There are also freezes on new hiring and on higher-level promotions. On the positive side, the NLM Director announced the appointment of Fernando Burbano as Director of Information Systems and head of the Office of Computer and Communications Systems. Dr. David Lipman introduced to the Board several new scientists on the staff of the National Center for Biotechnology Information: Dr. Thomas Madej, Dr. Colombe Chappey, Dr. Jean-Francois Gibrat, and Dr. Thomas Madden.

Dr. Lindberg reported briefly on the status of HPCC-related legislation. Legislation, introduced in 1992 by Mr. Gore, was reintroduced in 1993 in the Senate (S.4) by Senator Hollings and in the House (HR.1757) by Representative Boucher. The bills introduce two new ideas. First is a commitment to HPCC applications in the areas of health care, education and lifelong learning, digital libraries, advanced manufacturing, and (in the House bill) public access to government information. The second new idea is a commitment to the concept of a National Information Infrastructure (NII). Funds have been requested in the 1994 and 1995 budgets to begin to implement the NII. In addition, there was money in the President's budget for the National Institute of Standards and Technology (Department of Commerce) to award grants to communities to become wired as part of the NII and to organize various committees to discuss and set public policy concerning the NII. At Dr. Lindberg's invitation, Board member Dr. Robert Kahn commented that the National Academy of Sciences (NAS) is close to having a draft report addressing the issue of where research and education fit into the NII. Also, he said, Vice President Gore recently talked about the possibility of a Title 7 modification of the Communications Act of 1934 that would allow the telecommunication carriers to escape the "tangled web" of state and local regulations. Dr. Kahn talked briefly about the IITF--a Federal Task Force chaired by the Commerce Secretary with three committees: information policy, government policy, and applications. The IITF also has a 27-member advisory committee on which Dr. Kahn sits. Dr. Kahn reported that a small company (Internet Inc.) had filed for and been granted a trademark for the name Internet. No one knows yet how this will play out. In response to a question, Dr. Kahn said that the upcoming NAS report will deal with: the need to involve K-12 schools in networking; the need to get the "last mile" of connection out to users; issues such as cryptography and international access; and openness in network interfacing and interoperability.

Dr. Lindberg reported that Paul Rogers, Chairman of the Board of the Friends of the National Library of Medicine, will testify as a citizen witness on behalf of NLM before the Appropriations Committee. He noted that NLM will be making HPCC awards in response to proposals it received under the aegis of last year's Broad Agency Announcement. One award was made with FY 1993 funds (to West Virginia); more awards, as many as 11, will be made later in FY 1994. These awards will be primarily for testbed networks and

telemedicine. Finally, Dr. Lindberg described a December 9, 1993, program sponsored by NLM in honor of the 50th anniversary of its History of Medicine Division. The program, "Medicine and Health Since World War II: Four Federal Achievements," featured presentations on the Federal role in chemotherapy for tuberculosis (Dr. Martin M. Cummings), the thalidomide affair (Dr. Frances Kelsey), advances in burn treatment (Dr. Basil A. Pruitt, Jr.), and the eradication of smallpox (Dr. Donald A. Henderson).

## **VI. REPORT FROM EXTRAMURAL PROGRAMS**

Dr. Milton Corn, Acting Associate Director for Extramural Programs, announced that the Cooperative Agreement for the Electronic Medical Record (the concept was approved by the Board last May) is ready to proceed. One million dollars was transferred to Extramural Programs from NLM's National Information Center on Health Services Research and Health Care Technology and \$300,000 from the Agency for Health Care Policy and Research (AHCPR). The National Institute for Nursing Research has expressed an interest in joining the effort, but no commitment has been received yet. The February 4 edition of the NIH Guide to Grants and Contracts will carry the announcement, and the Board will review applications in time for funding this fiscal year.

Dr. Corn discussed the responsibilities of the Board of Regents when reviewing grant applications. NIH has a two-tiered review of applications. The first review, the "scientific merit" review, is performed by an initial review group (IRG). In the case of NLM almost all applications are reviewed by the Biomedical Library Review Committee. The second and final review is done by the Board for all applications except Fellowships and Small Business Innovation Research grants (SBIR). The day before the regular Board meeting, the Board's Extramural Programs Subcommittee meets to go over "special" applications in an intensive review. Applications are assigned as "specials" if they meet the following criteria: program relevance and/or policy issue; "split" vote by the IRG, i.e., at least two members of the IRG dissented from the majority vote; amount is \$150,000 or more; foreign application, or a conference grant application. The Subcommittee makes its recommendations to the Board on the first day of the meeting. The Board has the following options: Concur, recommend deferral for rereview (on scientific and nonscientific issues), refuse to concur with the IRG (without rereview), modify IRG recommendations (e.g., adjust budget items, alter length of award), and advise NLM Director on policy/relevance issues. The Board cannot alter a priority score. No grant can be funded by NLM unless the Board has concurred with the IRG recommendation. In addition, the Board must approve the concept of any new NLM programs. NLM usually asks the Board to vote on the other applications "en bloc." Dr. Corn emphasized, however, that Board members have the right at any time to request discussion of any application.

For a better understanding of "relevance and policy" issues, Dr. Corn defined the terms. While NLM has seldom used this method, it is commonly used at other NIH Institutes. Any Regent or NLM staff may call attention to an application that has either "high" or "low"

relevance for any of NLM's programs and there is a lack of congruence between the program relevance and the priority score; e.g., a project is technically outstanding with a high priority score, but is not relevant to the NLM mission. At the same time, another application with a priority score that would normally not be funded, is especially appropriate for NLM. The Board could recommend that this project be considered for funding because of high program relevance. Policy issues, Dr. Corn noted, would be handled similarly.

Finally, Dr. Corn explained the technical terms used by the NIH in the review process: priority score, percentile score, payline, success rate. Priority scores are used in tenths from 1 to 5, with one being the best. NLM, in general, funds all "outstanding" and half of the "excellent" applications. From the priority score NIH arrives at the percentile score. The actual scores of any given IRG for the last three sessions are pooled to come up with a percentile rating. The NLM Director, with the advice of the Board, may pay grants out of order. Last year about one in 14 grants at NIH was paid out of order, because of policy or relevance issues. The success rate is determined by how many people get funded relative to the number of applications considered. At NLM the success rate is one out of five.

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

## **VII. OUTREACH: NIH HIV/AIDS INFORMATION SERVICES CONFERENCE**

Dr. Lindberg introduced the topic by noting that NLM has over the past few years received earmarked funds to devote to its AIDS information services. These services had been started out of NLM's existing budget. The NIH HIV/AIDS Information Services Conference, held in June 1993, was an attempt to assess these and other NIH-sponsored AIDS information services: Are they useful? Accessible? Can they be improved? Are we missing target audiences? To address these issues, more than 180 scientists, clinicians, journalists, community workers, patients, etc., were assembled for the conference in NLM's Lister Hill Center Auditorium.

Next, the Conference's organizer, Dr. Elliot Siegel, NLM Associate Director for Health Information Programs Development, introduced his report to the Board by playing an audiotape of a National Public Radio news item broadcast nationally that morning (January 25, 1994). The broadcast announced the NLM's decision to make its three AIDS-related databases and DIRLINE available to all users without charge. This action was in response to one of 60 recommendations made at the Conference. Last June's Conference, Dr. Siegel said, is a good example of the Administration's order that Federal agencies get closer to their publics to find out how well they are meeting public needs. In this case, five categories of AIDS information users were built into the Conference in the form of five panels: clinical researchers, health care providers, allied health care providers, news media and the general public, and the patient community. A most important component of the Conference was the

presence of individuals from the affected community; they were represented on each of the five panels. A Guide to NIH HIV/AIDS Information Services was prepared by NLM and distributed at the Conference. The Guide, which also is an appendix in the Conference Report provided to the Regents, will be updated and made widely available. Dr. Siegel briefly described the agenda and how the discussions were stimulated by "case studies" presented at the five panels. The first draft of the Conference Report, with its findings and recommendations, was outlined by the co-chairs of the five panels with the assistance of NLM staff. The final version was reviewed by all panel participants. The Report is in effect a statement by the participants directed to the NIH and contains 61 specific recommendations. Dr. Siegel briefly described the case studies presented at each panel and the flavor of some of the panels' recommendations. An NLM interdivisional committee is looking at how best to implement those recommendations that pertain to the Library.

Following Dr. Siegel's presentation, one of the Conference's organizers, Cornelius Baker, Director of Public Policy and Education of the National Association of People with AIDS, gave his perspective on the meeting. Mr. Baker said that it is important that HIV-positive individuals have direct access to simplified, streamlined, and coordinated information systems so they can make responsible decisions in the management of their health care. He noted that many HIV-positive people do not have a traditional doctor-patient relationship nor do they have access to traditional sources of health information. In some of the affected communities there is deep suspicion of the medical and scientific world. Therefore it is important that NIH develop new routes of providing the information that these individuals need, for example, through social service agencies, human welfare organizations, and public libraries. Concerning this last category, Mr. Baker said there is only one public library in the Washington, D.C., area with an extensive health information center. Of the many college and university libraries in the area with health and medical information, only one encourages the public to utilize it. Community AIDS groups, especially those serving rural and minority populations, need support and technical assistance from NIH to make them proficient in information dissemination. NIH needs better ways of getting usable information--synthesized and interpreted--to these communities. Information about the mental health, psychosocial, and behavioral aspects of HIV/AIDS are also sorely neglected. Mr. Baker said that his organization would be pleased to work with NLM and NIH in disseminating information needed by the affected community.

Board of Regents member Col. Jacqueline Morgan, who attended the Conference, commented on the worldwide scope of HIV/AIDS--some 14 million cases at present, estimated to be 26 million by the turn of the century. She briefly described the military's AIDS research program at Walter Reed and other facilities. Prevention and public education programs are crucial, and information activities are an important component of these. The Conference sponsored by NLM and NIH, with its diversity of participants, is something the military could not have done. She congratulated the organizers for sponsoring a meeting that will have important and positive effects.

The Board of Regents endorsed the decision to provide free access to the AIDS databases.

## **VIII. PRESS CONFERENCE**

A press briefing to announce the NLM decision to provide free access to its AIDS-related databases was held in conjunction with the Board's luncheon (January 25).

## **IX. YALE'S NETMENU AND THE UMLS INFORMATION SOURCES MAP**

Ms. Betsy Humphreys, Deputy Associate Director for Library Operations, noted that the Board has in the past heard presentations on the subject of the Unified Medical Language System. The goal of the UMLS is to make it easy for users to connect to needed machine-readable information regardless of where that information resides. One aspect of the UMLS is the development of new knowledge sources to help overcome two major obstacles to easy access: the variety of ways the same concepts are expressed in the many information sources and the sheer amount and distribution of potentially relevant information across thousands of different databases. NLM is developing three UMLS knowledge sources: the Metathesaurus, the Semantic Network, and the Information Sources Map. The UMLS is called a "distributed national experiment," that is, although NLM has its own interdisciplinary UMLS research team, there are more than half a dozen contracts with distinguished medical informatics research groups around the country and more than 400 UMLS users at commercial, university, government, and other sites around the world. One of the UMLS contract collaborators is the Yale School of Medicine with Dr. Perry Miller, principal investigator. She introduced Dr. Miller and his colleague Dr. Seth Powsner.

Dr. Miller described "Netmenu," which is now fully operational at both the Yale School of Medicine and its hospital, and a pilot Information Sources Map (ISM). Netmenu allows users to have easy access to a set of frequently used local information sources; ISM casts a much broader net for external information sources. Dr. Miller and Dr. Powsner conducted a live demonstration of Netmenu for the Regents. Among the Netmenu choices is a variety of bibliographic databases (including MEDLINE), full-text databases, grant and research information, e-mail capabilities, and several clinical advice-giving systems. The network menu is deployed operationally within the School of Medicine on about 70 machines--many of them publicly available. The Information Sources Map (available through the Netmenu) is designed to allow the user to cast a much wider information-seeking net. Dr. Miller and Dr. Powsner conducted an ISM search on "cancer," showing how the system utilized the UMLS Metathesaurus to convert cancer to neoplasm and then identified a number of potential sources of information categorized by how closely the source matched "cancer." The user can regroup the lists to review them from a different perspective, for example, those that have broad subject coverage and those that are more focused--on the history, genetics, drug therapy, nursing-related issues, etc. With the multiplicity of information sources, it is important that a system such as this not only identify the sources, but categorize them so that the user has a good feel for what is available. In the search conducted on cancer, NLM's AIDSLINE was one of the potential sources identified and described. The system could then be used to connect to AIDSLINE. There are two ISM

versions--one focuses on sources of information at Yale, the other, a generic version, focuses on widely distributed Internet sources and is available to anyone. The Yale ISM is also being customized to access local information sources at the University of Utah. In summary, Dr. Miller said, the Netmenu is extensively used (20,000 sessions per month), the Yale ISM is currently deployed on a more limited pilot basis (about 300 sessions per month).

Following the presentation and demonstration, Dr. Carol Newton noted that clearly no one group, no matter how competent, can anticipate how systems will operate in different environments. That is why a partnership such as that of Yale and NLM, combining local and national development, can be very productive. She commented that the ability to categorize the information sources discovered in an ISM search is a very powerful tool. She asked what was being learned about the end users of these systems. Dr. Miller replied that they will be making the system available to some power users for their feedback and evaluation and they also plan to survey ordinary users. In response to another question, he said that the ISM and the Yale Gopher were linked. NLM's Dr. Richard Rodgers noted that the Library is working on a "registry tool" that will be an Internet-accessible forms-based interface that would allow people to register their information sources remotely. He agreed with a comment by Dr. Miller that systems like Gopher and World-Wide Web are essentially open marketplaces and ideal for browsing; the ISM tries to provide a focused way to get information on a specific subject. There was a general discussion about whether and how users of systems like ISM should be able to customize the systems and to create individual user profiles.

## **X. NIH DIRECTOR'S ADVISORY COMMITTEE MEETING**

Board Chair, Rachael Anderson, reported on the December 1, 1993, NIH Director's Advisory Committee Meeting, which she attended on behalf of the Board of Regents. The new NIH Director, Dr. Harold Varmus, will maintain a lab on the campus in addition to leading the organization. Dr. Varmus reported on his many meetings with key people in Congress while he was awaiting confirmation. Issues high on his agenda are intramural research and the Clinical Center, making high-level NIH appointments, the role of women and minorities in science, peer review within a climate of financial constraint, streamlining government procedures, the need for guidelines for human embryo research, and the relation between the intramural and extramural communities. Concerning this last item, the NIH Director is considering appointing an ombudsman to serve as a link to extramural scientists. Two prominent items on the agenda were to discuss intramural research program reviews that were being conducted and, as a response to recent criticisms, to discuss equal employment opportunity activities at NIH. Ms. Anderson made available to the Board background material, including statistics, on the EEO issue, and also a fact-finding report from an internal review of the intramural program.

## **XI. BIENNIAL REPORT OF THE BOARD OF REGENTS**

Dr. Elliot Siegel described the biennial NIH report as made up of reports from both the directors of the various NIH components and from their advisory boards. A draft report for the NLM Board of Regents has been prepared for the Board's review and comment. It contains descriptions of the planning activities that the Board has undertaken in such areas as toxicology/environmental health and librarian education, and also descriptions of new NLM programs that have resulted from previous planning efforts (specifically outreach and biotechnology). The draft report also contains sections on supporting basic library services and High Performance Computing and Communications. Dr. Siegel said that Regents should get their comments and suggestions to him by February 15. Ms. Anderson and Dr. Walker suggested that a section on NLM's response to suggestions from the NIH HIV/AIDS Information Services Conference might be added as an example of how the Library is responding to wishes from the user community. Dr. Siegel agreed and said that the section in the draft report on outreach could be enriched to include this information. The Board agreed that the present draft, with the addition of the items just mentioned, would be suitable. Dr. Siegel will give a revised report to the Board Chair for her approval on behalf of the full Board.

## **XII. REPORT FROM THE TOXICOLOGY AD HOC COMMITTEE**

At the last Regents' meeting, Board member Dr. H. Kenneth Walker was appointed to chair a small subcommittee to review the recommended plan of action to implement the recommendations made by the Long-Range Planning Panel on Toxicology and Environmental Health. Dr. Walker reported that after meeting with Dr. Ackerman, the subcommittee has decided that it will review the toxicology and environmental health databases in more detail and make a formal report about the toxicology initiative at the next Board meeting.

## **XIII. HSTAR DATABASE TEST**

Ms. Marjorie Cahn of NLM's newly created National Information Center on Health Services Research and Health Care Technology, said that HSTAR (Health Services and Technology Assessment Research) is a new "one-stop shopping" database. It contains MEDLARS-based materials related to health service research and also materials that appear in no other MEDLARS database. At the time of the test it contained about one million records to primarily post-1984 materials, and MEDLINE was the source for the bulk (93%) of the records. There were three objectives of the database test: (1) How well does it answer queries about health services research? (2) Would a Grateful Med input form screen work for HSTAR? (3) Does the Medical Subject Headings vocabulary need further revision in this area? Eighty-three volunteer users were enlisted in the test, which lasted from April through August 1993. Ms. Cahn described the test--who the typical testers were, the number of

searches conducted, the access software used, etc. Using slides to illustrate the various findings, she reported that: The test users used the system heavily; they felt they got "about the right amount of information" 55% of the time; there were few problems in using Grateful Med as the access mode; and almost all of the users (more than 90%) used, and were satisfied with, the Medical Subject Headings (MeSH). She said that the users expressed the need for more nonjournal literature in HSTAR, especially technical and government reports, industry and trade publications, and news items. Ms. Cahn said that NLM was aware of this need and the gap for this material is already being filled. Users also said they wanted more medical-related information from the fields of business, economics, engineering, insurance, law, management, medical informatics, and telemedicine. NLM is now focusing on filling those gaps. In summary, HSTAR is now available on the NLM network and contains 1.3 million records. An NLM work group has been convened to devise new Grateful Med screens tailored for health services researchers. A MeSH group is looking at the suggestions from the testers to see what should be added for the 1995 vocabulary. A training plan is being developed in cooperation with the National Network of Libraries of Medicine to look at how we can better train librarians (and those who train librarians) on how to make best use of HSTAR.

Following Ms. Cahn's presentation, Dr. Walker commented that HSTAR illustrates one of NLM's traditional strong points, that is, to anticipate the needs of new groups (which health service researchers are) and then devise ways to meet those needs. To develop such a sophisticated database to this degree is a remarkable accomplishment, he said.

**MEETING CLOSED FOR THE REVIEW OF GRANT APPLICATIONS  
JANUARY 25, 1994, 3:45 TO 4:15 P.M.**

**XIV. REVIEW OF PENDING APPLICATIONS**

Before proceeding with the consideration of pending applications, Dr. Roger W. Dahlen, Chief, Biomedical Information Support Branch, EP, asked Board members to be aware of confidentiality and conflict-of-interest procedures included in the grant application workbook. He 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 applications which presented a conflict of interest.

The Board reviewed 32 applications, requesting \$11,187,538 and recommended for further consideration 28 applications in the amount of \$9,194,738 for the total requested. Four applications in the amount of \$1,389,863 were not recommended for further consideration. Grant applications recommended for further consideration by the Board are listed in the



summary action (Attachment C). Interim actions taken by Extramural Programs staff since the September meeting were considered by the Board's Extramural Programs Subcommittee and noted and concurred with by the Board of Regents.

#### **MEETING OPEN--JANUARY 26, 1994, 9:00 A.M. TO ADJOURNMENT**

#### **XV. UPDATE ON PLANNING PANEL ON THE EDUCATION AND TRAINING OF HEALTH SCIENCE LIBRARIANS**

Dr. Elliot Siegel reported that the Board's Planning Panel on the Education and Training of Health Science Librarians has met twice; a third and final meeting will be held in March. Both the original Long-Range Plan and the later planning panel report on Outreach envisioned the need to prepare health science information professionals for the opportunities and challenges that will be presented by new communications technology. The Medical Library Association has posited a "platform for change" for the profession and has called on NLM to support it. Dr. Siegel introduced Ms. Susan Buyer of the NLM Office of Health Information Programs Development, who is serving as Executive Secretary for the Planning Panel. Ms. Buyer said that the Panel's chairman, Dr. Thomas Detre, spoke at the last Board meeting. She characterized the panel membership as being made up of librarians, health professionals, educators, and prospective employers of health science librarians. At their first meeting, last September, the Panel laid out a list of issues and concerns; these issues and concerns were then dealt with at their second meeting in December. At the second meeting, the Panel focused on: changes foreseen in the health care delivery and how that will impact what medical librarians do; the special needs of hospital librarians; and the relationship between medical librarianship and medical informatics. Working groups were formed to draft findings and recommendations that will be assembled into a report. At the upcoming March meeting, the Panel will consider this draft report and a final report will be submitted to the Board for consideration at a future meeting. Ms. Buyer briefly described some of the issues discussed at the last meeting of the Planning Panel.

Board Chair Rachael Anderson, liaison for the Regents to the Planning Panel, said that there is great interest in the Panel's work on the part of medical librarians. Current concern with the training and education of medical librarians goes back to the first IAIMS grants a decade ago when questions were raised about whether a cadre of skilled information professionals would be available to work in the new IAIMS milieu. The Medical Library Association and the profession in general is eagerly anticipating the Panel's report. The Panel's work may well affect not just medical librarianship but the entire library profession. In that connection, Ms. Anderson noted, she is pleased that new Regent Dr. Edwin Cortez has joined the Board and will bring a more general perspective to the Board's deliberations. Regent Beverly Allen commented that there is a group in the profession that feels somewhat disenfranchised--African-American health science librarians. She asked that representatives of this group be invited to the next Panel meeting so that their views could be included in

the Panel's deliberations. There followed a general discussion on the subject of training medical librarians, touching on such subjects as the profession's role outcomes research, the health of library schools, the profession and its role with the computerized medical record and with technology-based opportunities generally.

## **XVI. REPORT FROM THE NCBI BOARD OF SCIENTIFIC COUNSELORS**

Dr. David Lipman, Director of NLM's National Center for Biotechnology Information, substituted for Dr. Robert T. Sauer, Chairman, who was unable to make his scheduled report on the NCBI Board of Scientific Counselors. The BOSC meets twice a year, with one meeting focusing on database and software issues and the other on reviewing NCBI personnel. Permanent NCBI scientists must have their work reviewed at least once every four years, with the results affecting promotion, tenure, and resource allocation. All NCBI reports go to Dr. Lindberg, the Board of Regents, and to the NIH Director's Office (where they are presented to the NIH Board of Scientific Directors). Dr. Lipman said that the most recent BOSC meeting focused on the Center's service functions, specifically on the way information for GenBank is handled. Previously, GenBank sequence information had been submitted by scientists to the Los Alamos National Laboratories (LANL); this information is now being sent directly to the NCBI. This has resulted in a significant saving that is being transferred to the Center's intramural program. Dr. Lipman said that they have already noted a major improvement in quality control of the sequence information being entered into the database. As a result of NCBI's action, the Department of Energy has set up an independent sequence database at LANL. Unfortunately, some scientists have not yet become aware of the change and are still submitting their data to LANL. This will change slowly as journals change their instructions for sequence submission to authors. Dr. Lipman noted that sequence data is being exchanged between NCBI and LANL, so that regardless of where it was submitted it does end up in GenBank. In response to a suggestion from the BOSC, the NCBI is now taking steps to get more feedback from users. Finally, Dr. Lipman reported that the Center's commercial affiliates group--the Industrial Advisors Group--will be meeting in the near future.

Dr. Carol Newton asked whether data submission for GenBank from LANL was going smoothly. Dr. Lipman replied that although the Center gets submissions from LANL, they are sometimes missing critical information. Dr. Newton commented about the many errors in LANL data and asked whether they used the same error-checking tools that NCBI staff did. Dr. Lipman said that more important than the tools being used is the fact that the LANL staff who work on the records are not highly trained molecular biologists. Dr. Newton concluded by saying that it was exciting to see how the NCBI is maturing as an information resource--how the Center is developing the scientific tools to extract and transform information for the scientific community.

## **XVII. REPORT FROM THE LHC BOARD OF SCIENTIFIC COUNSELORS**

Dr. James J. Cimino, member of the LHC Board of Scientific Counselors, reported on the Board's two recent meetings in May and October 1993. At the May meeting the Board reviewed two projects--the Color Medical Imaging System (CMIS) and the Digital Imaging Systems for Human Anatomy. In the CMIS project, full color microscope slides are digitized using a low resolution camera and a high-power microscope and displayed on a high-resolution workstation. The reviewers were "stunned" by the quality and seamlessness of the images. However, it is very expensive to capture and produce the images. The Board made suggestions in a number of technical areas for speeding up the process and, since this was a final evaluation, asked that summary documentation be prepared by the investigators. They would also be interested in seeing follow-on projects that would address such issues as how to scale up the prototype and would evaluate image quality for clinical diagnosis and whether somewhat lower quality images (that would be cheaper and easier to store) might suffice for purposes like education and testing. The Board also reviewed the concept plan for the Digital Imaging Systems for Human Anatomy project. This will involve the collection of MRI and CT images and cryosectioned photographs from the "Visible Human" project and then creating an electronic image library that may be used on compact disk or sent over networks. The BOSC looks forward to seeing specific research proposals on how these things will be carried out. They recommended that minimal requirements be established for how to index, retrieve, and display the images. At the October meeting, the Board reviewed the current scope and future plans of the Lister Hill Center Educational Technology Branch. Dr. Cimino briefly described the current projects of the Branch and its Learning Center for Interactive Technology. He said that the BOSC, in response to an agenda of four questions, determined that: (1) Educational technology is an appropriate activity for the Lister Hill Center; (2) a partnership with a local medical school would be very valuable; (3) the resources of the ETP and The Learning Center should be available via the Internet; and (4) a research plan should be established for a program in human-computer interaction. The BOSC concluded its review of the ETB by saying that its development over the last several years under Dr. Alexa McCray has been remarkable and that the Library should be proud of it.

Following Dr. Cimino's presentation, Dr. Robert Kahn suggested that the LHC should look into new digitization technology being developed by Kodak. He also noted that a crucial issue as one magnifies images is what happens at the edges between images--avoiding the "jaggies." Overall, he is impressed with the LHC program in educational technology.

## **XVIII. APPOINTMENT OF NOMINATING COMMITTEE**

Ms. Anderson appointed Ms. Wendy Carter (Chair), Col. Emmanuel Cassimatis, and Dr. Kathleen McCormick to nominate a Board Chair for 1994-95. They will report at the next meeting.

**XIX. DISCOVERING HIDDEN TREASURES IN NLM'S HISTORICAL COLLECTION**

Dr. Emilie Savage-Smith, a historian at the Welcome Unit for the History of Medicine and on the Faculty of Oriental Studies at Oxford University, has been studying NLM's Arabic medical manuscripts. Using slides, she showed the Board a number of treasures from the NLM History of Medicine Division, a collection of Arabic historical materials she described as the most important in the world outside Cairo and Istanbul.

**XX. ADJOURNMENT**

The meeting was adjourned at 11:50 a.m., Wednesday, January 26.

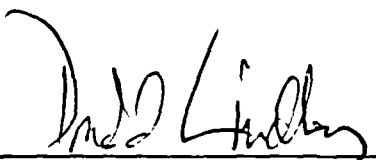
\*\*\*\*\*  
Subcommittee Meeting on Monday, January 24:  
Extramural Programs Subcommittee--2:00-3:45 p.m.  
(Attachment B)  
\*\*\*\*\*


**ACTIONS TAKEN BY THE BOARD OF REGENTS**

1. The Board reaffirmed the Operating Procedures.
2. Ms. Anderson appointed a nominating committee for Board chair: Ms. Wendy Carter (Chair), Col. Emmanuel Cassimatis, and Dr. Kathleen McCormick.
3. The Board endorsed the decision to provide free access to AIDS databases.
4. The Board concurred with the recommendations of the Extramural Programs Subcommittee. Grant applications recommended for further considerations are listed in the summary actions (Attachment C).

\*\*\*\*\*

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

 3/29/94  
Donald A. B. Lindberg, M.D. (Date)  
Executive Secretary

 4/5/94  
Rachael K. Anderson (Date)  
Chair

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**BOARD OF REGENTS**

**EXTRAMURAL PROGRAMS SUBCOMMITTEE MEETING**

**January 24, 1994**

**2:00 to 3:45 p.m.**

**ATTENDEES**

**Subcommittee Members Present:**

Dr. H. Kenneth Walker, Chair  
Ms. Rachael K. Anderson, Ex Officio  
Ms. Beverly E. Allen  
Ms. Wendy Carter  
Dr. Robert J. Joynt  
Dr. Kathleen A. McCormick

**NLM Staff Present:**

Dr. Milton Corn, Acting Associate Director, EP  
Mrs. Ruth Bortz, Grants Specialist, EP  
Mrs. Shelly Carow, Grants Management Specialist, EP  
Mr. Peter A. Clepper, Program Officer, EP  
Mrs. Karin K. Colton, Committee Management Specialist, EP  
Dr. Roger W. Dahlen, Chief, Biomedical Information Support Branch, EP  
Ms. Andrea Epstein, Grants Assistant, EP, EP  
Mrs. Rose Marie Holston, Program Analyst  
Mrs. Frances H. Howard, Special Assistant, Office of the Associate Director, EP  
Mrs. Frances Johnson, Program Officer, EP  
Mr. Richard T. West, Chief, Office of Program Planning and Evaluation, EP



APPLICATIONS APPROVED BY COUNCIL  
(ARRANGED NUMERICALLY BY PROGRAM)  
INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE  
COUNCIL DATE: JAN./FEB. 1994

| APPLICATION NUMBER | PROJECT TITLE                                   | AMOUNTS<br>RECOMMENDED |
|--------------------|---|------------------------|
| 1 G07 LM05533-01A1 | LAUREL HIGHLANDS INFORMATION ACCESS PROJECT     | 68,279                 |
| 1 G07 LM05644-01   | WNY CIRCUIT HOSPITAL INFORMATION ACCESS PROJECT | 95,704                 |
| 1 G07 LM05648-01   | SAINT ANTHONY HOSPITAL INFORMATION ACCESS GRANT | 8,900                  |
| 1 G07 LM05656-01   | END-USER HEALTH INFORMATION RETRIEVAL           | 73,459                 |

APPLICATIONS APPROVED BY COUNCIL - DUAL REVIEW  
 (ARRANGED NUMERICALLY)  
 PROG. CLASS:  
 INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE  
 COUNCIL DATE: JAN./FEB. 1994

| APPLICATION NUMBER | PROJECT TITLE   | AMOUNTS<br>RECOMMENDED                   |
|--------------------|---|--|
| 1 R01 HS07750-01A2 | DUALS SECONDARY REVIEW: LM<br>MASS MEDIA DISSEMINATION OF HEALTH INFORMATION        | 01A2 104,115<br>02 103,513<br>03 108,711 |
| 1 R01 HS08161-01   | DUALS SECONDARY REVIEW: LM<br>COMPUTERS TO IMPROVE ARTHRITIS CARE IN RURAL SETTINGS | 01 210,056<br>02 275,459<br>03 246,623   |

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

COUNCIL DATE: JAN./FEB. 1994

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

| APPLICATION NUMBER | PROJECT TITLE  | AMOUNTS<br>RECOMMENDED   |
|--------------------|--|--|
| 1 G08 LM05640-01   | DEVELOPING CURRICULUM TRACKING IN A PBL PROGRAM          | 01 143,626<br>02 145,369<br>03 167,125                             |
| 1 G08 LM05641-01   | INTEGRATED ADVANCED INFORMATION MANAGEMENT SYSTEMS       | 01 144,310<br>02 127,689   |
| 1 G08 LM05642-01   | INFORMATICS AND BIostatISTICS CENTER                     | 01 148,594<br>02 160,603   |
| 1 G08 LM05645-01   | IAIMS PLANNING AT THE UNIVERSITY OF TEXAS MEDICAL BRANCH | 01 149,991<br>02 149,055   |
| 1 G08 LM05651-01   | COMPREHENSIVE HEALTH INFORMATION NETWORK                 | 01 149,625   |
| 1 G08 LM05655-01   | LSUMC: STATEWIDE IAIMS PLANNING                          | 01 149,904   |
| 1 G08 LM05657-01   | IAIMS PLANNING AT THE UNIVERSITY OF CHICAGO              | 01 150,000   |
| 1 G08 LM05661-01   | ALBANY MEDICAL CENTER IAIMS PROGRAM                      | 01 547,908<br>02 549,704<br>03 549,812<br>04 549,205<br>05 549,893 |

APPLICATIONS APPROVED BY COUNCIL  
 (ARRANGED NUMERICALLY BY PROGRAM)  
 PROG. CLASS: COUNCIL DATE: JAN./FEB. 1994  
 INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

| APPLICATION NUMBER | PROJECT TITLE  | AMOUNTS<br>RECOMMENDED  |
|--------------------|--|---|
| 2 R01 LM04622-07   | DEVELOPING MEDICAL KNOWLEDGE BASES AS A RESOURCE                                     | 07 197,811<br>08 200,301<br>09 217,478                        |
| 1 R01 LM05361-01A2 | STATE INTERVENTION AGAINST CONTAGIOUS DISEASE  | 01A2 24,705<br>02 22,790                                      |
| 1 R01 LM05473-01A1 | CONFRONTING MEDICAL DILEMMAS: METHODS OF MEDICAL ETHICS                              | 01A1 25,000<br>02 25,000<br>03 25,000                         |
| 1 R01 LM05485-01A1 | VERNACULAR BODIES  | 01A1 24,994<br>02 24,904<br>03 24,978                         |
| 1 R01 LM05639-01   | DIGITAL REPRESENTATION AND VISUALIZATION OF HUMAN BRAIN                              | 01 80,591<br>02 67,653<br>03 70,359<br>04 73,173<br>05 76,100 |
| 1 R01 LM05643-01   | INFORMATION NEEDS, ACCESS AND FLOW IN EMERGENCY MEDICINE                             | 01 114,333<br>02 118,698                                      |
| 1 R01 LM05732-01   | DUALS SECONDARY REVIEW: HG<br>MULTIPLE SEQUENCE ALIGNMENT SERVER AND ALGORITHM LEVEL | 01 135,263<br>02 104,413                                      |

APPLICATIONS APPROVED BY COUNCIL  
(ARRANGED NUMERICALLY BY PROGRAM)  
COUNCIL DATE: JAN./FEB. 1994

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

| APPLICATION NUMBER | PROJECT TITLE  | AMOUNTS<br>RECOMMENDED |
|--------------------|--|------------------------|
| 1 R13 LM05646-01   | DUALS SECONDARY REVIEW: NS<br>WORKSHOP: PATTERN-THEORETIC KNOWLEDGE REPRESENTATION | 01 21,900              |

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

COUNCIL DATE: JAN./FEB. 1994

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

| APPLICATION NUMBER | PROJECT TITLE                                     | AMOUNTS<br>RECOMMENDED  |
|--------------------|---|---|
| 1 R29 LM05647-01   | FORMALIZING THE NOTION OF CLINICAL SIGNIFICANCE   | 01 67,510<br>02 64,830<br>03 67,243<br>04 72,753<br>05 75,483 |
| 1 R29 LM05652-01   | MODELING AND COMPUTING WITH UNCERTAIN STRUCTURES  | 01 86,331<br>02 62,401<br>03 64,684<br>04 67,058<br>05 69,526 |
| 1 R29 LM05653-01   | COMPUTERIZED CRITICAL VALUE REPORTING             | 01 69,679<br>02 64,729<br>03 67,682<br>04 70,782<br>05 74,035 |
| 1 R29 LM05663-01   | ASSESSMENT OF INFORMATION SEEKING IN PRIMARY CARE | 01 63,890<br>02 67,085<br>03 70,439<br>04 72,224<br>05 75,835 |

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

COUNCIL DATE: JAN./FEB. 1994

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

| APPLICATION NUMBER | PROJECT TITLE   | AMOUNTS<br>RECOMMENDED |
|--------------------|---|------------------------|
| 1 R43 LM05729-01   | CLIENT-SERVER TO ACCESS BIOLOGICAL DBASES OVER INTERNET | 01 45,681              |

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

A G E N D A

106th Meeting of the

BOARD OF REGENTS

9:00 a.m., May 24-25, 1994

Board Room  
Mezzanine of  
National Library of Medicine

MEETING OPEN: 9:00 a.m. to 3:15 p.m. on May 24 and from 9:00 a.m. to adjournment on May 25.

MEETING CLOSED: 3:15 to 3:45 p.m. on May 24 for the review of grant applications.

1. CALL TO ORDER AND INTRODUCTORY REMARKS 9:00- 9:05 Ms. Rachael K. Anderson
2. REMARKS BY THE SURGEON GENERAL, PHS 9:05- 9:20 Dr. M. Joycelyn Elders
3. REMARKS BY THE DIRECTOR, NIH 9:20- 9:40 Dr. Harold Varmus
4. CONSIDERATION OF JANUARY MINUTES TAB I 9:40- 9:45 Ms. Rachael K. Anderson

5. FUTURE MEETING DATES

Fall Meeting: Sept. 27-28, 1994 (T-W)--CONFIRMED

Winter Meeting: Jan. 24-25, 1995 (T-W)--CONFIRMED

Spring Meeting: May 23-24, 1995 (T-W)--PROPOSED

(Subcommittees meet, when necessary, the day before the full Board.)

(On May 23: Extramural Programs Subcommittee--2:00-3:30 p.m.

Toxicology Ad Hoc Committee--3:45-5:00 p.m.)

6. REMARKS BY THE DIRECTOR, NLM TAB II 9:45-10:30 Dr. Donald A.B. Lindberg
  - a. Budget Tab A
  - b. Personnel Tab B
  - c. Legislation Tab C
  - d. AIDS Database Tab D
  - e. Reinvention Lab Tab E

Discussion 10:30-10:45 Board Members

COFFEE BREAK 10:45-11:00

5/19/94



- |     |   |                |             |  |
|-----|---|----------------|-------------|--|
| 7.  | HPCC BROAD AGENCY ANNOUNCEMENT  | <u>TAB III</u> | 11:00-11:15 | Dr. Daniel R. Masys  |
|     | Discussion  |                | 11:15-11:30 | Dr. Robert E. Kahn<br>Dr. Steven J. Phillips<br>Other Board Members                          |
| 8.  | MEDIA OUTREACH  | <u>TAB IV</u>  | 11:30       | Mr. Robert B. Mehnert  |
|     | Discussion  |                | -11:50      | Board Members  |
| 9.  | FRANK B. ROGERS' AWARD  |                | 11:50-11:55 | Dr. Donald A.B. Lindberg   |
| 10. | DIRECTOR'S AWARD  |                | 11:55-12:00 | Dr. Donald A.B. Lindberg   |
|     | LUNCHEON CATERED IN CONFERENCE ROOM B.<br>(Photograph of Board Members in front of Library.)            |                | 12:00- 1:00 |  |
| 11. | VISIBLE HUMAN   | <u>TAB V</u>   | 1:00- 1:30  | Dr. Michael Ackerman<br>Dr. Alvy Ray Smith<br>Dr. David G. Whitlock<br>Dr. Victor M. Spitzer |
|     | Discussion  |                | 1:30- 1:45  | Dr. Carol M. Newton<br>Other Board Members   |
| 12. | INTERIM REPORT FROM THE PLANNING<br>PANEL ON THE EDUCATION AND TRAINING<br>OF HEALTH SCIENCE LIBRARIANS | <u>TAB VI</u>  | 1:45- 2:15  | Dr. Elliot Siegel<br>Dr. Thomas Detre  |
|     | Discussion  |                | 2:15- 2:30  | Ms. Rachael K. Anderson<br>Other Board Members   |
| 13. | REPORT FROM EXTRAMURAL PROGRAMS   | <u>TAB VII</u> | 2:30- 2:45  | Dr. Milton Corn  |
|     | a. Budget   | <u>Tab A</u>   |             |  |
|     | b. Proposed Reforms of NIH<br>Grant Procedures  |                |             |  |
|     | c. Miscellaneous  |                |             |  |
|     | Discussion  |                | 2:45- 3:00  | Ms. Rachael K. Anderson<br>EP Subcommittee Members<br>Other Board Members                    |
|     | COFFEE BREAK  |                | 3:00- 3:15  |  |

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MEETING CLOSED FOR THE REVIEW OF GRANT APPLICATIONS, MAY 24, 3:15-3:45 P.M.  
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- 14. REVIEW OF GRANT APPLICATIONS 3:15- 3:45 Dr. Roger W. Dahlen  
(Conflict-of-Interest instructions in front of workbook for your information and review.)

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 MEETING OPEN 3:45 p.m. to ADJOURNMENT  
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- 15. LEITER LECTURE on "TWENTY-FIRST CENTURY SCIENCE" (Lister Hill Center Auditorium) TAB VIII 4:00- 5:00 Dr. M.R.C. Greenwood

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

DINNER . . . . . Uniformed Services University of the Health Sciences  
 Cocktails at 6:30 p.m. in the Courtyard.  
 Dinner at 7:30 p.m. in the Dining Room.

SPEAKER: Dr. Richard M. Satava  
 Special Assistant, Biomedical Technology, ARPA

TITLE: "Medicine 2001: A Framework for the Future Medicine."

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

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- 16. HISTORY OF THE REGIONAL MEDICAL PROGRAM TAB IX 9:00- 9:30 Dr. Stephen Strickland  
Dr. Alexa McCray

Discussion 9:30- 9:45 Dr. John Parascandola  
Dr. H. Kenneth Walker  
Other Board Members

- 17. REPORT FROM THE TOXICOLOGY AD HOC COMMITTEE TAB X 9:45-10:15 Dr. H. Kenneth Walker  
Dr. James A. Zimble

Discussion 10:15-10:30 Ms. Beverly Allen  
Ms. Naomi Booker  
Other Board Members

- 18. REPORT OF THE NOMINATING COMMITTEE 10:30-10:35 Ms. Rachael K. Anderson

COFFEE BREAK 10:35-10:45

**DEPARTMENT OF HEALTH AND HUMAN SERVICES**

**NATIONAL INSTITUTES OF HEALTH**

**NATIONAL LIBRARY OF MEDICINE**

**BOARD OF REGENTS**

**MINUTES OF THE 106TH MEETING**

**MAY 24-25, 1994**

**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 <sup>1/2/</sup>  
May 24-25, 1994**

The Board of Regents of the National Library of Medicine was convened for its one-hundred-and-sixth meeting at 9:00 a.m. on Tuesday, May 24, 1994, in the Board Room of the National Library of Medicine, Bethesda, Maryland. Ms. Rachael K. Anderson, Director of the Health Sciences Center Library at the University of Arizona, chaired the meeting. In accordance with P.L. 92-463 and the Determination of the Director, NIH, as announced in the Federal Register on April 15, 1994, the meeting was open to the public from 9:00 a.m. to 3:15 p.m. on May 24 and from 9:00 to 11:30 a.m. on May 25. The meeting was closed from 3:15 to 3:35 p.m. on May 24 for the review, discussion, and evaluation of grant applications. A Board roster is enclosed under Attachment A.

**Board members present were:**

|                                |                           |
|--------------------------------|---------------------------|
| Ms. Rachael K. Anderson, Chair | Dr. John T. Farrar (5/24) |
| Ms. Beverly E. Allen           | Dr. Carol M. Newton       |
| Ms. Pamela Q. J. André         | Dr. Steven J. Phillips    |
| Ms. Naomi C. Booker            | Dr. Richard Rowberg       |
| Dr. Mary E. Clutter            | Dr. H. Kenneth Walker     |
| Dr. Edwin M. Cortez            | Dr. James A. Zimble       |
| Dr. Lawrence DeNardis          |                           |

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

Ms. Wendy Carter, representing Dr. John T. Farrar.  
Lt. Col. Kristen Raines, representing Lt. Gen. Alcide M. LaNoue.  
Capt. David S. Kemp, representing Vice Adm. Donald F. Hagen.  
Capt. Kathleen A. McCormick, representing Dr. M. Joycelyn Elders.  
Col. Jacqueline Morgan, representing Lt. Gen. Alexander M. Sloan.

**Board Members Absent:**

Dr. Robert J. Joynt  
Dr. Robert E. Kahn

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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. This procedure applies only to individual discussion of an application and not 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. Michael Ackerman, Acting Associate Director, SIS  
Mr. Harry Bennett, Deputy Director, OCCS  
Mr. Fernando Burbano, Director, Information Systems  
Ms. Sally Burke, Deputy Executive Officer, OD  
Ms. Marjorie Cahn, Special Expert, National Information Center on Health Services  
Research and Health Care Technology, LO  
Mr. Kenneth Carney, Executive Officer, OD  
Ms. Lois Ann Colaianni, Associate Director, LO  
Dr. Milton Corn, Acting Associate Director, EP  
Dr. George J. Cosmides, Deputy Associate Director, SIS  
Dr. Roger W. Dahlen, Chief, Biomedical Information Support Branch, EP  
Mr. Earl Henderson, Deputy Director, LHNCBC  
Dr. Richard Hsieh, Director, International Programs, OD  
Ms. Betsy Humphreys, Assistant Director for Health Services Research Information  
Dr. Lawrence Kingsland III, Assistant Director for Applied Informatics  
Ms. Eve Marie Lacroix, Chief, Public Services Division, LO  
Dr. David Lipman, Director, National Center for Biotechnology Information  
Mr. James S. Main, Chief, Audiovisual Program Development Branch, LHNCBC  
Dr. Daniel R. Masys, Director, Lister Hill National Center for Biomedical Communications  
Dr. Alexa McCray, Chief, Educational Technology Branch, LHNCBC  
Mr. Robert B. Mehnert, Chief, Office of Inquiries and Publications Management, OD  
Dr. Elliot R. Siegel, Associate Director, Health Information Programs Development  
Mr. Richard T. West, Chief, Office of Program Planning and Evaluation, EP

**Others present included:**

Dr. Harold Varmus, Director, NIH  
Dr. Thomas Detre, Sr. Vice Chancellor for Health Sciences, University of  
Pittsburgh  
Dr. Carol E. Hudgings, Actg. Dir., Office of the Forum for Quality and  
Effectiveness in Health Care.  
Ms. Pam Moore, "Capital Publications"  
Dr. John Parascandola, Public Health Service Historian, HHS  
Dr. Ann Scherzinger, Radiologist, Dept. of Radiology, Univ. of Colorado  
Dr. Alvy Ray Smith, Pres., Altamira Software Col, Mill Valley, CA  
Dr. Victor M. Spitzer, Asst. Prof., Dept. of Cellular and Structural  
Biology and Radiology, Univ. of Colorado  
Ms. Liza White, "The Blue Sheet"  
Dr. David G. Whitlock, Prof., Dept. of Cellular and Structural Biology and  
Radiology, Univ. of Colorado

## **I. OPENING REMARKS**

Ms. Rachael Anderson, Chair, welcomed the Regents and guests to the 106th meeting of the Board of Regents of the National Library of Medicine. She recognized a new ex officio member, Ms. Pamela André, Acting Director of the National Agricultural Library.

## **II. DATES OF FUTURE MEETINGS**

The Board will meet next on September 27-28. The next winter meeting will be January 24-25, 1995. The proposed dates of May 23-24, 1995, were accepted and confirmed for the next spring meeting.

## **III. REPORT FROM THE NLM DIRECTOR**

Dr. Lindberg reported that the FY 1994 budget was subject to a government-wide rescission of which NLM's portion was a reduction from \$119,981,000 to \$118,019,000. The FY 1995 President's budget has \$138,521,000 for NLM. The increases are primarily in the area of High Performance Computing and Communications (HPCC) and, to a lesser extent, AIDS. In the area of personnel, the Director reported that NLM is within the NIH-imposed 1994 ceiling (recently recalculated to 614) for full-time employees (FTEs). The ceiling will be lowered to 599 in 1995; NLM projects meeting that level by the end of the present fiscal year. NLM is participating in an Adopt-a-School program and is in the early phases of making arrangements with Coolidge High School in Washington, D.C. In the area of legislation, there are two versions of new HPCC-related legislation--one from the Senate, one from the House. They have in common a commitment to applications in health care, education and life-long learning, digital libraries, and advanced manufacturing (the House added a fifth category--public access to government information). Even without final HPCC legislation, much has been done by the various agencies in anticipation. In a related matter, Dr. Lindberg reported on recent hearings on the subject of telemedicine, held at NIH, at which he testified on behalf of NIH and NLM. The Director said that NLM's decision to allow free access to its AIDS-related databases (announced at the last Board meeting) has met with resounding approval on the part of the health science community. Usage of those databases has risen dramatically. Finally, Dr. Lindberg said he was proud to announce that Dr. Masys would be leaving as Director of the Lister Hill Center and taking a position at the University of California at San Diego where he will be chairman of the new medical informatics department.

#### **IV. REMARKS BY THE NIH DIRECTOR**

Dr. Harold Varmus, making his first presentation to the NLM Board of Regents, remarked that the NLM has a remarkable vision of the future--supporting computerized information dissemination, improving health care, compiling widely used databases and networks. He frequently uses NLM's information services. Much of the NIH Director's time is spent dealing with budgetary matters. The President has shown his support for NIH by proposing a 1995 budget that can only be construed as generous--a 4.7% overall increase. NIH will probably not end up with that amount, however, and will likely ultimately receive an increase below the rate of inflation for biomedical research. To make available budgets go further, NIH is reevaluating its intramural research program which currently takes about 11% of the budget. An advisory committee has made a number of recommendations about that program--including how NIH scientists are formally evaluated and granted tenure, how resources are apportioned between intramural and extramural components, and the future of the 40-year-old NIH Clinical Center. The NIH has been designated a "Reinvention Laboratory" for purposes of investigating the peer review system. Dr. Varmus mentioned several possibilities being looked at, including being able to triage grant applications so that reviewers can spend more time with applications deemed more competitive, making more extensive use of computers and e-mail, and postponing required paperwork to arrive "just in time" during the review process. Following Dr. Varmus's presentation, Ms. Anderson expressed the Board's concern that continuing financial constraints on the Library Operations budget could jeopardize NLM's existing computerized network and database resources and thus adversely affect health care and research around the country. In response to a question from Dr. Walker about NLM's role within NIH, Dr. Varmus said that the Library had one great advantage in that what it does can be seen to be clearly connected to health care reform. The connection between medical research and health care reform is not as obvious to most people. Although when Mrs. Clinton recently visited NIH, her remarks indicated that she had a real appreciation for the role of research in the Nation's medical and health care system.

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

The Regents approved the minutes of the January 25-26, 1994, meeting, without change. Dr. Walker complimented the Library on the excellence of the minutes prepared for each Board meeting.

## **VI. HPCC BROAD AGENCY ANNOUNCEMENT**

Dr. Daniel R. Masys, Director of the Lister Hill Center, briefly summarized the Library's recent involvement in the Federal interagency High Performance Computing and Communications Initiative. As Dr. Lindberg earlier mentioned, two versions of new HPCC-related legislation have passed the House and the Senate; Dr. Masys now reported to the Regents how NLM has just funded 12 institutions to support health care HPCC applications. There are six areas of health care named in the HPCC legislation that merit support: testbed networks, visualization technology, virtual reality technology, collaborative technology for the real-time treatment of distant patients, database technology to provide access to medical information, and database technology for storing and transmitting patient medical records while protecting accuracy and privacy. Last year NLM solicited proposals for health care applications and received 137. Evaluation committees found 85 to be potentially fundable; 12 were ultimately funded--the awards were just announced. The major focus of those funded (except two) is on developing and evaluating testbed networks. Dr. Masys briefly reported on what each project hopes to achieve. [Note: A descriptive list of the projects is available from the NLM Office of Public Information.]

Following Dr. Masys's presentation, Dr. Steven Phillips commented that a certain amount of caution is required to avoid becoming embroiled in the competition between universities and others in the private sector to recruit patients. Dr. Masys commented that cutthroat competition in the medical arena may not be healthy; it certainly is valid, however, to raise the question of the relation between these projects and the economic aspects of health care reform, including networks of providers and referral patterns. He agreed that NLM management should keep in mind the effect of these projects--pernicious or salutary--on health care delivery. In response to a question from Dr. Cortez, Dr. Masys said that issues of data security and confidentiality are very important in the funded projects and we hope to learn much about these very important matters.

## **VII. MEDIA OUTREACH**

Mr. Robert Mehnert, NLM's Public Information Officer, described the Library's recent media outreach efforts, including exhibiting at major medical meetings, keeping the print media informed of important news from NLM by press releases and press conferences, and working with radio and television to ensure that those media also have the opportunity to carry news items about NLM. Since January 1, NLM and the Regional Medical Libraries have sponsored 23 NLM exhibits around the country: 10 were staffed by NLM personnel, the remainder by the regions. The



conferences exhibited a variety of health disciplines, medical sciences, and geographic locations. In the same span, the NLM has issued five press releases. Mr. Mehnert displayed on slides a number of clippings from newspapers and magazines resulting from those releases. He also described and showed several examples of a series of five public service announcements (PSAs) prepared several years ago by the Friends of the National Library of Medicine and sent to several thousand health science journals. Many inquiries have resulted. The NLM Friends is preparing a new series of PSAs; a slide of proposed examples was shown.

Following Mr. Mehnert's presentation, Ms. Rachael Anderson read a prepared statement by Dr. Lois DeBakey, outreach consultant to the NLM, who was unable to attend this meeting. Dr. DeBakey said the Library has made remarkable strides in its outreach program since the publication in 1989 of the Outreach Planning Panel report. This can be seen in NLM's improving its relations with the members of the National Network of Libraries of Medicine, strengthening hospital access to national information resources, training in health information management at all levels in the network, and implementing a new generation of information products and services (examples are the free AIDS databases and COACH). Despite significant progress, Dr. DeBakey emphasized that there are still too many health professionals who are not aware of or who do not avail themselves of the Library's outstanding services. She urged Board members who have not already done so to join the Friends of the NLM.

## **VIII. AWARDS**

Dr. Lindberg made three awards to NLM staff. He presented the 1994 Frank B. Rogers Award to Dianne McCutcheon of the Technical Services Division. Ms. McCutcheon was cited for the "design and development of an online interactive SERHOLD module which permits serial holdings of the National Network of Libraries of Medicine to be updated directly online." The 1994 NLM Director's Award was presented by Dr. Lindberg to Mr. Alvin Barnes of the Staff Library, Public Services Division. Mr. Barnes was cited for "furthering NLM's mission by applying remarkable library skills on behalf of the people and of the Library staff." Mr. Barnes is retiring after 42 years of Government service, 34 with the National Library of Medicine. Dr. Lindberg also presented an NLM Director's Award to Dr. Milton Corn, Acting Associate Director for Extramural Programs, "for contributions to the Nation's health through vigorous and exemplary leadership of NLM's Extramural Programs."

Dr. Lindberg also presented certificates to retiring Board members Dr. Lawrence J. DeNardis and Ms. Rachael Anderson, who also received a gavel for her service as Board Chair.

## **IX. THE VISIBLE HUMAN PROJECT**

Dr. Michael Ackerman, Acting Associate Director for Specialized Information Services, used slides to review the genesis of the Visible Human Project as an outgrowth of the NLM Long Range Planning process. The goal of the project is to build a digital image library containing volumetric data representing the complete normal adult male and female. The data would consist of digitized photographic images from cryosectioning and digital images derived from computerized tomography and magnetic resonance imaging. A contract award for the project was made to the University of Colorado in August 1991. Since that time there have been several presentations to the Board of Regents on this subject, most recently at the May 1993 meeting. Before introducing Dr. David G. Whitlock and Dr. Victor M. Spitzer, the principal investigators, Dr. Ackerman briefly described the project's next phase. This is the development of "contour maps" and boundary detection algorithms by anatomy experts. The plan is to make available a public domain dataset that will serve as a common ground for comparing medical segmentation, imaging, and visualization techniques. The long-term goal is to link the print library of functional physiological knowledge with the image library of structural anatomical knowledge into one unified resource of medical information.

Dr. David Whitlock used slides to show the Board how the project which was to identify, acquire, and completely image a male cadaver was accomplished. The same will now be done for a female cadaver. He described how a male cadaver of high quality--without trauma or deformity--was selected with the help of three state anatomical boards (Texas, Colorado, Maryland); the cadaver selected was that of a male who died through court-ordered lethal injection. Dr. Whitlock next outlined in some detail how the MRI and CT scanning was done on the whole fresh cadaver and, later, photographs made of the sectioned, frozen cadaver. Following Dr. Whitlock's presentation, Dr. Spitzer discussed the digital aspects of the project. A 2048 x 2048 CCD array camera was used to capture the anatomical images. The CT, MRI, and anatomical cryosection images were captured digitally. The cryosections were also captured on 35mm and 70mm film. Altogether, the male dataset in its present form is 43 gigabytes. Dr. Spitzer said that various compression and reduction techniques will result in a considerably smaller dataset. For example, when the peripheral non-information bearing parts of each image are eliminated, size of the area of the image will be considerably smaller. As to applications, he noted that

simulation for education and training has received the most attention. However, the first tools and applications may be done by the entertainment industry. The Visible Human dataset has also frequently been compared in its potential to MEDLINE (because of MEDLINE's wide accessibility around the world) and the Human Genome Project (because of the complexity of the data). Dr. Spitzer showed a video made up of a series of still images from the dataset.

Dr. Alvy Ray Smith, former Regent and a consultant to the Board, said that the 1990s will be the decade of the "flowering of graphics." Recent Disney animated films (such as "The Lion King") are completely digital, he said. This kind of imagery consists of 2-dimensional, nongeometric graphics. A second kind of imaging is that represented by "Jurassic Park"--in which it is virtually impossible to tell what was made from computer and what is not. This kind of imaging is both 3-dimensional and geometric. NLM's Visible Human Project has aspects of both types of graphics, Dr. Smith said. Each digitized MRI, CT, or digitized photographic slide is a 2-dimensional nongeometric-based image. Phase 2 of the project will be the "Jurassic Park" phase--experts will extract 3-dimensional geometric organs or body systems from the dataset. There is even a third kind of graphics, he said, for which there is no cinematic exemplar: 3-dimensional *nongeometric* computer graphics. This is where the Visible Human Project will shine--the rendering of nongeometrical data distributed evenly through 3-dimensional space is called "volume visualization." What is displayed on the screen is not just the surface but the contents of bodies. There are now available volume visualization techniques that could be applied to the Visible Human dataset. Dr. Smith showed pictures illustrating volume visualization techniques applied to the inside of a human skull. Dr. Smith urged the Board to support strongly Phase 2 of the Visible Human Project, including applying present volume visualization techniques to the existing data.

Dr. Carol Newton complimented the NLM on the way it has systematically approached the project--involving panels, committees, and teams of outside experts as necessary. She endorsed Dr. Smith's call for volume visualization (and dissection) as the frontier toward which we should be moving. The analysis techniques and rapid algorithms developed for doing this will be extremely valuable.

#### **X. INTERIM REPORT FROM THE PLANNING PANEL ON THE EDUCATION AND TRAINING OF HEALTH SCIENCE LIBRARIANS**

Dr. Elliot Siegel, NLM Associate Director for Health Information Programs Development, said that the third and final meeting of the Planning Panel on the Education and Training of Health Science Librarians has been held. Issues discussed at the first two panel meetings were presented to the Board at its last meeting. He

introduced Dr. Thomas Detre, Senior Vice Chancellor for Health Sciences at the University of Pittsburgh, who presented an interim report on the Planning Panel's activities. The Panel reached several conclusions. One of these is that spectacular changes in technology now provide opportunities for the profession that were undreamed of a decade ago. Dr. Detre enumerated a number of changes foreseen by the panelists: in the role of hospitals and regional health networks; the emergence of health care alliances formed around major academic medical centers; the evolving role of primary care physicians, specialists, and other health care professionals such as nurse practitioners; the expansion of outcome measures beyond morbidity and mortality to include level of functioning and quality of life; and the ability to use genetic procedures to identify early who is at risk for certain disorders. This is the world in which future health science librarians will have to operate. We clearly need a new model and professional development program--graduate library schools must somehow ensure that students acquire the knowledge and skills necessary to be leaders in using and applying the new communications technologies for health care. One recommendation that will emerge in the report is that NLM should collaborate with the Medical Library Association and graduate schools of library and information sciences to develop various education and training programs for health sciences librarians and information specialists.

Following Dr. Detre's presentation, Dr. Siegel reported that the Planning Panel discussed a new program concept called "challenge awards," the purpose of which would be to support innovative collaboration and planning for the implementation of specific recommendations of high priority. Four possible areas that might be appropriate for such awards are: those connected to health care reform, such as planning for institutional information systems; proposing ways to maintain existing professional skills and learning new skills--"lifelong learning" in health sciences librarianship and experimentation with alternative delivery models to the traditional MLS course of study; curriculum development in medical informatics and medical librarianship; and how to ensure that minority populations are better represented in medical librarianship. Dr. Siegel mentioned a number of associations, societies, and other groups that might be interested in working with NLM in these areas. Dr. Siegel said that his office was assisting the Panel in preparing the recommendations; they have not yet been circulated to the members. A draft final report should be ready for presentation to the Board of Regents at its next meeting.

Ms. Anderson noted that the medical library world eagerly awaits the report of the NLM Planning Panel. Both the Medical Library Association and Association of Academic Health Science Librarians are interested in the Panel's work. The plan to have "challenge awards" should be positively received by the community, she said, but that the interest in them is likely to exceed the resources available for funding. In response to a question from Dr. Mary Clutter, Dr. Siegel said that the first awards

would be made in Fiscal Year 1995. Dr. Lindberg said that NLM envisions four contracts, one in each area, presuming that good applications proposing partnerships are received. Ms. Beverly Allen commented that she brought the Panel's work to the attention of the African American Medical Library Association. The Association will be in touch with Dr. Siegel to express its views for the Panel's consideration. Dr. Lopez asked whether the Panel has reviewed existing models for revitalizing the profession, such as several studies funded by the Council on Library Resources that proposed partnerships within the profession. Dr. Lindberg responded that NLM, which funded that program, did not find the results useful. Ms. Anderson said that although there may be diminishing opportunities for traditional hospital librarians, there are new opportunities--a new paradigm--for reinventing the profession, for example, through regional care networks. Comments by Dr. Lindberg and Ms. Carter brought out that, at least in the Federal Government, personnel practices are not geared up to recognizing a new and enhanced role for medical librarians. Finally, Dr. Detre said that it will be important to conduct a public information or outreach campaign to the medical community about a revised and enhanced profession of medical librarianship.

## **XI. EXTRAMURAL PROGRAMS**

### Electronic Medical Record Program

Dr. Milton Corn, Acting Associate Director, EP, summarized the progress to date of the Electronic Medical Record Program. The program was announced in January, allowing for a very a short turn-around time for the applicants to respond. The result was 120 letters-of-intent, realizing 93 completed applications by the April 27 deadline. The initial review of the applications will take place the latter part of July. At this time NLM has set aside \$1.0 million for a maximum of ten grants. The AHCPR (Agency for Health Care Policy and Research) will participate with additional funds and in the review process. The Board's Extramural Programs Subcommittee will do its review in August, and the entire Board will be asked to make their recommendations by mail ballot.

### Proposed Reforms of NIH Grant Procedures

Dr. Corn briefed the Board by presenting ten suggestions now under discussion:

1. A grant is an assistance mechanism, not a cost-reimbursable instrument, made for the public good and not to keep the research community in business.

2. When making awards, attention should be paid to the Principal Investigator by giving weight to track record and seniority.
3. A grant application is a dataset, not a bound volume, and it should be possible to handle sections in discrete packages.
4. Applications should be received and processed throughout the year, eliminating deadlines for Principal Investigators and staff.
5. All applications would be considered to be "new," where the P.I. writes a new and better grant instead of patching up the old.
6. Grants would be processed under the "just-in-time" principle, eliminating the need to submit information until needed by the review/administrative process.
7. Triage would be used to reduce workload for reviewers and staff, since not all applications need receive the same degree of review.
8. The review committee would come up with a score by assigning to grading clusters, analogous perhaps to school grades.
9. Because summary statements are primarily for NIH use, staff workload could be reduced by modifying current P.I. expectations that a tutorial will be provided.
10. Oversight should be based on progress and on unusual circumstances, thus reducing meaningless reporting requirements and permitting concentration on problems.

**MEETING CLOSED FOR THE REVIEW OF GRANT APPLICATIONS**  
**May 24, 1994, 3:15 to 3:35 P.M.**

**XII. REVIEW OF PENDING APPLICATIONS**

Before proceeding with the consideration of pending applications, Dr. Roger W. Dahlen, Chief, Biomedical Information Support Branch, EP, asked Board members to be aware of confidentiality and conflict-of-interest procedures included in the grant application workbook. He 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 applications which present a conflict of interest.

The Board reviewed 78 applications, requesting \$42,388,494 and recommended for further consideration 64 applications in the amount of \$36,813,371 for the total requested. Fourteen applications in the amount of \$5,575,123 were not recommended for further consideration. Grant applications recommended for further consideration by the Board are listed in the summary action (Attachment C).

#### **MEETING OPEN--MAY 24, 1994, 9:00 A.M. TO ADJOURNMENT**

### **XIII. HISTORY OF REGIONAL MEDICAL PROGRAMS**

Dr. Stephen Strickland, an NLM Visiting Scholar who has received support from the Library, reported on his 20 months of research into the history of the Regional Medical Programs (RMP). He noted that several principals in the Program--Mary Lasker, Richard Nixon, and former NIH Director James Shannon, have all died recently--since Dr. Strickland completed his manuscript last winter. The RMP, established in the mid-sixties, was based on the Heart Disease, Cancer, and Stroke Report prepared by a commission headed by Dr. Michael DeBakey. It had as its goal the elimination of killer diseases and reducing their toll on the American population. It proposed to do this ensuring that citizens had access to the best medicine and most recent research by establishing new linkages between practitioners and medical centers of excellence. Dr. Strickland briefly recounted how the legislation was debated and enacted. Within a year there were 50 Regional Medical Programs in the U.S. They had enormous latitude, not only in the kinds of programs they developed, but in how they defined their geographic "regions." Although they varied greatly, certain themes recurred--many developed coronary care units or emergency medical services, for example. One of its most striking results was the extent to which it engendered cooperation among medical and health care providers and institutions. The RMP, however, never achieved a critical mass of support in the Congress and was, ultimately, vulnerable. The Program was ended in the Nixon Administration. Dr. Strickland said that the history of the Regional Medical Program has obvious relevance to today's healthcare reform movement. There are lessons to be learned about cooperation among health care providers, about the need to recognize regional and state differences and the need to allow time and adequate support for the development of any new healthcare program.

Following Dr. Strickland's presentation, Dr. Alexa McCray, Chief of the Lister Hill Center's Educational Technology Branch, used a Mosaic program to show a number of images from the History of Medicine Division's collection related to the RMP. She also described how various materials are being scanned to create an online database resource of information based on RMP materials. Data resulting from

scanning, even if it contains errors resulting from the scanning process, can be a valuable source of historical information. Dr. McCray described how the material (some 1500 documents) was indexed, including the need to create some 200 RMP-related headings. Lister Hill Center technical staff are interested solving quality problems related to the materials--some for example, are photocopies of mimeographed documents. She also demonstrated the electronic filing system and how RMP materials can be identified and retrieved.

Dr. John Parascandola, former chief of NLM's History of Medicine Division and presently with the Public Health Service historical office, said he was pleased with the results of the RMP project. Not only will we have the history written by Dr. Strickland, but we will have the extensive files and other historical resources collected during the project. As Dr. McCray has demonstrated, the materials will be available in a convenient and efficient way that few other historical resources can boast. Particularly because the decade of the RMP saw more important health legislation than perhaps any other; the collected materials will be invaluable to future historians.

Dr. H. Kenneth Walker commented that he had much pleasure in reading the manuscript. The book will have important insights for today's health care reformers. The RMP demonstrates both the heights to which we can aspire in health care and the self-serving depths to which those defending their turf--including his own environment of the academic medical center--can descend. Dr. DeNardis, who was involved with state government (Connecticut) in the 60s and 70s, commented that the Comprehensive Health Planning Program, which predated RMP had, a consumer focus and was in its early years a popular program. The RMP, however, had a provider focus and was not as well connected to the communities through local and state governments. Another early 1970's program, also little known at the time, was the Experimental Health Service Delivery System Program. Under this program, money was allocated to 16 U.S. sites to achieve integration among the many health care delivery components. This was an attempt to bring payers and public officials into the picture. When the 80s arrived, with severe inflation, high interest rates, and a growing deficit, Federal policymakers eliminated programs that attempted to integrate all that had gone before.

#### **XIV. REPORT FROM THE AD HOC TOXICOLOGY INFORMATION COMMITTEE**

Dr. H. Kenneth Walker reported on the activities of the Board's Ad Hoc Committee to review the Library's Toxicology and Environmental Health Program (members: Ms. Beverly Allen, Ms. Naomi Booker, Dr. James Zimble, and Dr. Walker). The



Committee met several times and was briefed by staff of the Specialized Information Services who are responsible for the NLM Toxicology and Environmental Health Program. The Committee believes there are two areas of challenge: (1) the use of an inadequate interface to NLM's databases in this area and (2) poorly formatted output for users in clinical medicine. Dr. Walker briefly recounted the history of NLM's toxicology program, which dates back to 1967, and how the present suite of toxicology-related databases evolved. He also presented usage statistics for the online files. The problem, he said, is that "there are 21 complex, nonintegrated, multidisciplinary, subject-oriented databases." They contain disparate kinds of information and various user interfaces provide access. The databases require extensive and constant user training. Dr. Walker said that NLM must find out what the user community sees as its primary need in this area, create an intelligent user-oriented interface, and present to the community a virtual toxicology and environmental health information program.

Following Dr. Walker's report, Dr. Michael Ackerman, NLM Acting Associate Director for Specialized Information Services, said that the 1993 Planning Panel on Toxicology and Environmental Health has directed NLM to refocus its efforts in greater support of clinical medicine, environmental health, and occupationally related diseases. The NLM program that directs these efforts has been renamed the Toxicology and Environmental Health (TEH) Information Program. Not only are the TEH information resources very diverse, as Dr. Walker pointed out, but they reside on two different computer systems--the IBM mainframe (ELHILL) system and a distributed system composed of a network of 486 PCs known as TOXNET. There is a transparent gateway between the two systems. In general the TEH bibliographic files are on ELHILL, the data files on TOXNET. Dr. Ackerman then listed the various TOXNET files and the cooperating organizations that provide the data to NLM. The TEH staff are now working to increase the relevance of the databases to the health care community and to use high-speed networking and intelligent searching algorithms to make access to the files easier for those involved in health care. A TEH Gopher that contains information about NLM products and services has been developed and made available on Internet. Mosaic is also being explored as a medium for transferring information to users. Dr. Ackerman, Mr. Bruno Vasta, and Dr. Tamas Doszkocs then demonstrated two experimental search interface systems. One is based on searching by concept across all files of the TOXNET system; the other demonstrates the utility of graphical geographic-based searching. The concepts being demonstrated are applicable not only for the TEH files but across all of NLM's information files. A sample search involving chemicals and leukemia was performed that retrieved information from several of the TOXNET databases. This was followed by a demonstration of the TOXNET geographic information map using the Toxic Chemical Release Inventory file to retrieve information on chemicals released into the environment in Louisiana. Dr. Ackerman

concluded that it ultimately will be possible to extend the concept of the interfaces shown to create a virtual, single, unified NLM database.

Following these presentations and demonstrations, Dr. Zimble commented said that the existence of a sophisticated interface providing access to one "virtual database" is exciting. He can envision a time when a physician, during the course of taking a history, enters a patient's address in an electronic patient record and triggers a report of possible exposure to environmental hazardous substances as reported in the NLM databanks. It will be important for the user to have an idea of the reliability of the information being retrieved, he added. Ms. Beverly Allen commented that they will be introducing the new interface to the physicians and students at her institution (Morehouse School of Medicine in Atlanta) to get their reaction and to see if it reduces the level of intermediated searching. She looks forward to the time that the system is "invisible" to the user--when the user doesn't know whether he or she is connected to TOXNET or to MEDLINE--it's seamless. Ms. Naomi Booker, the third member of the Ad Hoc Committee, commented that by making the access very easy for a variety of users it will be more likely that the information will be used more in the areas of greatest need--in underserved urban and rural areas. Prevention initiatives will particularly benefit from such a simplified system. In response to a question from Ms. Allen, Dr. Ackerman said that the prototype interface systems demonstrated are still some time away from being mature enough to be implemented for general users. Ms. Rachael Anderson commented that the Board is pleased to see the progress made in setting a direction to implement the Planning Panel's recommendations. The Board looks forward to hearing progress reports as the systems mature.

## **XV. REPORT OF THE NOMINATING COMMITTEE**

Wendy Carter, who headed the committee to nominate a new chair for the Board of Regents, placed in nomination the name of Dr. H. Kenneth Walker, Professor of Medicine at the Emory University School of Medicine. Dr. Walker was elected unanimously.

## **XVI. THE DEVELOPMENT OF CLINICAL GUIDELINES BY THE AGENCY FOR HEALTH CARE POLICY AND RESEARCH**

Dr. Carol E. Hudgings, Acting Director of the Office of the Forum for Quality and Effectiveness in Health Care, one of eight major components of the AHCPR, said that the AHCPR was established to enhance the quality, appropriateness, and the effectiveness of patient care services through improved knowledge. NIH focuses on

biomedical research; AHCPR focuses on health services research. Key policy issues addressed by the AHCPR include enhancing medical practice, looking at the cost of care, access to care, and quality of care. There are four pillars of the medical effectiveness program: collection of data for outcomes research, research targeted to clinical effectiveness and patient outcomes, the development of clinical practice guidelines, and the dissemination of research findings and practice guidelines. The program focuses more on the outcomes of health care rather than the processes of health care. Clinical guidelines, which are developed by her office, are defined as systematically developed statements designed for practitioners and patients that will be helpful in making clinical decisions. Three products are derived from the guidelines: criteria statements that can be used to assess the appropriateness of specific health care decisions or services; performance measures by which we can monitor the extent to which a provider has conformed to the statements within a clinical practice guideline; and standards of quality that relate to a range of acceptable performance. These three products, taken together, may be considered evaluation instruments for measuring the quality of care to see if it conforms to the care specified in the practice guidelines.

Dr. Hudgings brought the Regents up to date as to the number and nature of clinical guidelines so far prepared. More than 20 have produced, 10 have been released. They are acute pain management, urinary incontinence, prediction and prevention of pressure ulcers, cataracts, and depression and primary care, sickle cell disease, early HIV infection, benign prostatic hyperplasia, management of cancer pain, and unstable angina. The heart failure guideline will be released in the next few weeks, followed closely by otitis media in children, treatment of pressure ulcers and low back problems. To be released over the next year are post-stroke rehabilitation, quality determinants of mammography, cardiac rehabilitation, and Alzheimer's. Panels just beginning their work are on smoking cessation and anxiety and panic disorders in a primary care setting. Panels being planned are for screening for colorectal cancer, chronic pain headache, prevention of osteoporosis, acute myocardial infarction, and risk assessment in complicated pregnancies. Dr. Hudgings described how the guidelines are prepared in various print and electronic formats for dissemination to different audiences, professional and lay. To date, some 10 million copies have been distributed through the AHCPR clearinghouse and through cooperative arrangements with other organizations. The most popular guideline is on the management of acute pain. The agency is exploring ways to use information technologies creatively to develop, disseminate, and implement the guidelines. Some of these efforts are to create expert system algorithms for the guidelines, electronic full-text retrieval, an electronic library of published guidelines on the Internet, and CD-ROMs with guidelines. It is clear that the development and dissemination of clinical practice guidelines will have an important role as we move toward health care reform, Dr. Hudgings said. She said that she has been pleased with the

cooperation between AHCPR and NLM and the subsequent development of NLM's new HSTAT database that carries the full text of the guidelines.

Dr. Daniel Masys, Director of the Lister Hill National Center for Biomedical Communications, described briefly NLM's working with the AHCPR to help create and disseminate information products of use to that agency. Dr. Masys showed the Board a brief videotape prepared by the NLM about HSTAT (Health Services/Technology Assessment Text) and how it can be accessed in various forms via the Internet. He then used Mosaic to demonstrate how HSTAT may be searched and clinical guidelines retrieved and displayed.

**XVII. ADJOURNMENT**

The meeting was adjourned at 11:30 a.m., Wednesday, May 25.

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Subcommittee Meeting on Monday, May 23:

Extramural Programs Subcommittee--2:00-3:45 p.m.  
(Attachment B)


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**ACTIONS TAKEN BY THE BOARD OF REGENTS**

1. The Board concurred with the recommendations of the Extramural Programs Subcommittee. Grant applications recommended for further considerations are listed in the summary actions (Attachment C).

\*\*\*\*\*

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) 8/15/94

  
Rachael K. Anderson (Date) 8/8/94  
Chair

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**BOARD OF REGENTS**

**EXTRAMURAL PROGRAMS SUBCOMMITTEE MEETING**

**May 23, 1994**

**2:00 to 3:45 p.m.**

**ATTENDEES**

**Subcommittee Members Present:**

Dr. H. Kenneth Walker, Chair  
Ms. Rachael K. Anderson, Ex Officio  
Ms. Beverly E. Allen  
Ms. Wendy Carter  
Dr. Kathleen A. McCormick

**NLM Staff Present:**

Dr. Milton Corn, Acting Associate Director, EP  
Mrs. Ruth Bortz, Grants Specialist, EP  
Mrs. Shelly Carow, Grants Management Specialist, EP  
Mrs. Karin K. Colton, Committee Management Specialist, EP  
Dr. Roger W. Dahlen, Chief, Biomedical Information Support Branch, EP  
Ms. Andrea Epstein, Grants Assistant, EP  
Dr. Jack Hahn, Special Assistant to the Associate Director, EP  
Mrs. Frances H. Howard, Special Assistant, Office of the Associate Director, EP  
Mrs. Frances Johnson, Program Officer, EP  
Ms. Arnita Miles, Clerk-typist, EP  
Mr. Richard T. West, Chief, Office of Program Planning and Evaluation, EP



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

MAY 1994

COUNCIL DATE:

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

| APPLICATION NUMBER | PROJECT TITLE  | AMOUNTS<br>RECOMMENDED |
|--------------------|--|------------------------|
| 1 G07 LM05419-01A1 | WAMLC ONLINE MODERNIZATION PROGRAM                       | 01A1 98,212            |
| 3 G07 LM05474-01S1 | SOMEGA INFO. DEL. ELECTRONIC ACCESS-IDEA #2 SUPPLEMENTAL | 01S1 74,021            |
| 1 G07 LM05531-01A1 | TECHNOLOGY FOR IMMEDIATE ACCESS TO HEALTH INFORMATION    | 01A1 61,099            |
| 1 G07 LM05532-01A1 | MULTIPLE USER ACCESS TO ONLINE UNION CATALOG             | 01A1 59,671            |
| 1 G07 LM05536-01A1 | TOXLINE DATABASE   | 01A1 9,000             |
| 1 G07 LM05686-01   | SCHOOL OF OPTOMETRY LIBRARY NETWORK                      | 01 24,000              |
| 1 G07 LM05696-01   | SOUTHSIDE HEALTH INFORMATION CONSORTIUM ACCESS GRANT     | 01 96,594              |

APPLICATIONS APPROVED BY COUNCIL  
 (ARRANGED NUMERICALLY BY PROGRAM)  
 PROG. CLASS: COUNCIL DATE: MAY 1994

| INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE | APPLICATION NUMBER | PROJECT TITLE  | AMOUNTS<br>RECOMMENDED                 |
|--|--------------------|--|--|
|  | 2 G08 LM05286-04   | INTERACTIVE MEDICAL INFORMATION SYSTEM IN NEW MEXICO     | 04 178,415<br>05 191,658<br>06 174,661 |
|  | 1 G08 LM05676-01   | COLORADO/WYOMING HEALTH INFORMATION ACCESS               | 01 144,124<br>02 149,895               |
|  | 1 G08 LM05679-01   | INTEGRATED INFORMATION MANAGEMENT PLAN FOR UT, MEMPHIS   | 01 102,252                             |
|  | 1 G08 LM05680-01   | REGIONALLY INTEGRATED DATA NETWORK (RIDN)                | 01 150,000                             |
|  | 1 G08 LM05682-01   | UNIVERSITY OF ROCHESTER MEDICAL CENTER IAIMS PLANNING    | 01 149,592<br>02 149,987               |
|  | 1 G08 LM05684-01   | A MODEL MULTIMEDIA SUPPORT CENTER FOR THE HEALTH SCIENCE | 01 179,613<br>02 163,875<br>03 144,881 |
|  | 1 G08 LM05690-01   | AN INTEGRATED IAIMS PLANNING PROCESS AT FOX CHASE        | 01 146,375<br>02 142,350               |
|  | 1 G08 LM05693-01   | ORAL HEALTH SCIENCES INFORMATION SYSTEM (OHSIS)          | 01 158,713<br>02 109,328<br>03 133,297 |

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

COUNCIL DATE: MAY 1994

| INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE | APPLICATION NUMBER | PROJECT TITLE                                       | AMOUNTS<br>RECOMMENDED                 |
|--|--------------------|---|--|
|  | 1 G08 LM05697-01   | IAIMS PHASE I GRANT FOR CITY OF HOPE: HOPENET 2000  | 01 143,030<br>02 150,182               |
|  | 1 G08 LM05705-01   | IAIMS PLANNING AT THE MEDICAL COLLEGE OF WISCONSIN  | 01 149,740<br>02 149,877               |
|  | 1 G08 LM05710-01   | IAIMS PLANNING YEAR                                 | 01 150,000                             |
|  | 1 G08 LM05711-01   | GEORGIA RURAL HEALTH INFORMATION CLEARINGHOUSE      | 01 114,236<br>02 99,660                |
|  | 1 G08 LM05713-01   | NLM-IAIMS, HEALTH PLANNING GRANT                    | 01 149,938<br>02 85,268                |
|  | 1 G08 LM05719-01   | INTERHOSPITAL NUCLEAR MEDICINE EDUCATIONAL RESOURCE | 01 135,504<br>02 150,000<br>03 150,000 |

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

COUNCIL DATE: MAY 1994

| APPLICATION NUMBER | PROJECT TITLE  | AMOUNTS<br>RECOMMENDED                                 |
|--------------------|--|--|
| 2 R01 LM04925-06A1 | IMAGE-BASED KNOWLEDGE SYSTEM IN ANATOMY  | 06A1 237,673<br>07 238,106<br>08 247,188<br>09 256,629 |
| 1 R01 LM05505-01A2 | IAIMS & NEMSC IMAGE LIBRARY NETWORK  | 01A2 130,064<br>02 130,644<br>03 138,780               |
| 1 R01 LM05516-01A2 | DUALS SECONDARY REVIEW: HL<br>SPATIALLY ORIENTED DATABASE FOR DIGITAL BRAIN IMAGES   | 01A2 145,884<br>02 128,282<br>03 134,893               |
| 1 R01 LM05542-01A1 | VITALISM IN MONTPELLIER, 1750-1850   | 01A1 22,594  |
| 1 R01 LM05560-01A1 | COMPUTATIONAL APPROACHES TO CYTOGENETIC DATA   | 01A1 124,862<br>02 118,667<br>03 125,258               |
| 1 R01 LM05607-01A1 | ASSESSING NEW MATHEMATICAL MODELS FOR MEDICAL EVENTS                                 | 01A1 174,509<br>02 209,369<br>03 198,359               |
| 1 R01 LM05649-01   | HISTORY OF STATE REGISTRATION OF CAUSES OF DEATH                                     | 01 13,565<br>02 5,391                                  |
| 1 R01 LM05667-01A1 | DUALS SECONDARY REVIEW: RR<br>A KNOWLEDGE/DATABASE INFRASTRUCTURE FOR BRAIN MODELING | 01A1 182,318<br>02 192,338<br>03 181,504               |

APPLICATIONS APPROVED BY COUNCIL  
(ARRANGED NUMERICALLY BY PROGRAM)

COUNCIL DATE: MAY 1994

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

| APPLICATION NUMBER | PROJECT TITLE   | AMOUNTS<br>RECOMMENDED                 |
|--------------------|---|--|
| 1 R01 LM05678-01   | VENEREAL DISEASE AND IMPERIAL POLICY: BRITAIN 1860-1918                           | 01 24,364                              |
| 1 R01 LM05698-01   | EVALUATION OF A DATABASE OF PRACTICE GUIDELINE ABSTRACTS                          | 01 202,484<br>02 130,872               |
| 1 R01 LM05699-01   | THE PSYCHIATRIC CASE HISTORY'S EVOLUTION AS GENRE                                 | 01 24,996<br>02 24,996                 |
| 1 R01 LM05700-01   | ETHICS & ALLOCATION: FOUNDATIONS OF AMERICAN HEALTH CARE                          | 01 25,000<br>02 25,000<br>03 25,000    |
| 1 R01 LM05701-01   | CLINICAL LIBRARIANSHIP: A HISTORY AND HANDBOOK                                    | 01 20,994<br>02 20,995<br>03 15,100    |
| 1 R01 LM05702-01   | DUALS SECONDARY REVIEW: CA<br>ADVANCED IMAGE OBJECT FORMATS FOR MEDICAL DATABASES | 01 168,582<br>02 172,621<br>03 179,525 |
| 1 R01 LM05708-01   | A SOFTWARE ARCHITECTURE FOR GUIDELINE-DIRECTED THERAPY                            | 01 219,433<br>02 313,107<br>03 325,509 |
| 1 R01 LM05709-01   | BIOMEDICAL RESEARCH INFORMATION DATABASES   | 01 108,821<br>02 100,311<br>03 104,323 |

| APPLICATION NUMBER | PROJECT TITLE   | AMOUNTS<br>RECOMMENDED   |
|--------------------|---|--|
| 1 R01 LM05712-01   | DUALS SECONDARY REVIEW: CA<br>FAST BROWSING OF PACS IMAGE ARCHIVE VIA NETWORK | 01 151,277<br>02 159,070<br>03 175,827                             |
| 1 R01 LM05715-01   | DIGITAL-VIDEO PATIENT SIMULATION USING MEDICAL DATABASES                      | 01 130,493<br>02 124,177<br>03 130,029                             |
| 1 R01 LM05716-01   | MULTIPLE REPRESENTATIONS OF BIOLOGICAL SEQUENCES                              | 01 126,822<br>02 129,816<br>03 136,193<br>04 136,973<br>05 142,251 |
| 1 R01 LM05718-01   | DUALS SECONDARY REVIEW: HG<br>ADAPTIVE ALGORITHMS FOR MOLECULAR BIOLOGY       | 01 74,123<br>02 77,941<br>03 76,163                                |
| 1 R01 LM05750-01   | DUALS SECONDARY REVIEW: HD<br>AN INVESTIGATION OF NEURONAL GROWTH ALGORITHMS  | 01 184,716<br>02 163,778<br>03 174,159                             |
| 9 R01 LM05759-07   | DUALS SECONDARY REVIEW: EY<br>STRUCTURED ANALYSIS OF THE RETINA               | 07 175,197<br>08 163,297<br>09 154,921                             |
| 1 R01 LM05773-01   | NETWORK SERVER FOR ELECTRONIC GENETIC ANALYSIS                                | 01 136,729<br>02 134,918   |

APPLICATIONS APPROVED BY COUNCIL  
(ARRANGED NUMERICALLY BY PROGRAM)      COUNCIL DATE:      MAY      1994  
INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

| APPLICATION NUMBER | PROJECT TITLE  | AMOUNTS<br>RECOMMENDED |
|--------------------|--|------------------------|
| 1 R13 LM05768-01   | DUALS SECONDARY REVIEW: JP<br>INTELLIGENT SYSTEMS FOR MOLECULAR BIOLOGY CONFERENCE | 01      27,900         |

APPLICATIONS APPROVED BY COUNCIL  
 (ARRANGED NUMERICALLY BY PROGRAM)  
 PROG. CLASS: COUNCIL DATE: MAY 1994  
 INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

| APPLICATION NUMBER | PROJECT TITLE  | AMOUNTS<br>RECOMMENDED  |
|--------------------|--|---|
| 1 R29 LM05619-01A1 | KNOWLEDGE-BASED LARGE-SCALE CLINICAL EVENT MONITORING                      | 01A1 70,453<br>02 63,329<br>03 70,175<br>04 72,809<br>05 71,235 |
| 1 R29 LM05706-01   | DUALS SECONDARY REVIEW: NR<br>DEVELOPMENT OF CLINICAL KNOWLEDGE STRUCTURES | 01 80,981<br>02 72,149<br>03 55,976<br>04 58,534<br>05 62,180   |
| 1 R29 LM05714-01   | LLSF MAPPING FOR INDEXING & RETRIEVAL OF MEDLINE                           | 01 83,685<br>02 87,033<br>03 57,236<br>04 59,525<br>05 61,906   |



APPLICATIONS APPROVED BY COUNCIL  
 (ARRANGED NUMERICALLY BY PROGRAM)  
 COUNCIL DATE: MAY 1994  
 INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE  
 PROG. CLASS:

| APPLICATION NUMBER | PROJECT TITLE  | AMOUNTS<br>RECOMMENDED |
|--------------------|--|------------------------|
| 1 R43 LM05736-01   | DUALS SECONDARY REVIEW: MH<br>UNIFIED SEARCH STRATEGY FOR COMPUTERIZED MEDICAL RECORDS | 01<br>74,940           |
| 1 R43 LM05740-01   | DUALS SECONDARY REVIEW: RR<br>HUMAN MEMORY EXTENSION-BASED MEDICAL INFORMATION QUERY   | 01<br>32,414           |
| 1 R43 LM05741-01   | DUALS SECONDARY REVIEW: MH<br>COMPUTER ASSISTED INSTRUCTION FOR ELECTRODIAGNOSIS       | 01<br>57,414           |
| 1 R43 LM05742-01   | DUALS SECONDARY REVIEW: RR<br>MOBILE DISPLAY OF COMPUTER ACCESSED PATIENT RECORDS      | 01<br>39,324           |
| 1 R43 LM05749-01   | DUALS SECONDARY REVIEW: DK<br>COMPUTER-ASSISTED MEDICAL INTERVIEW OF HISPANIC PATIENTS | 01<br>75,000           |
| 1 R43 LM05760-01   | DUALS SECONDARY REVIEW: RR<br>A NETWORK FOR EFFICIENT MEDICAL DATA COMMUNICATION       | 01<br>33,070           |
| 1 R43 LM05780-01   | DUALS SECONDARY REVIEW: GM<br>COMPUTER SIMULATOR FOR BIOLOGICAL SEQUENCE ANALYSIS      | 01<br>51,346           |

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

MAY 1994

COUNCIL DATE:

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

| APPLICATION NUMBER | PROJECT TITLE                                     | AMOUNTS<br>RECOMMENDED   |
|--------------------|---|--------------------------|
| 2 R44 LM05461-02   | COMPILING AND DOCUMENTING THE CPS ON COMPACT DISC | 02 152,236<br>03 122,722 |

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

A G E N D A

107th Meeting of the

BOARD OF REGENTS

9:00 a.m., September 27-28, 1994

Board Room  
Mezzanine of  
National Library of Medicine

MEETING OPEN: 9:00 a.m. to 4:30 p.m. on September 27 and from 9:00 a.m. to adjournment on September 28.

MEETING CLOSED: 4:30 p.m. to 5:00 p.m. on September 27 for the review of grant applications.

1. CALL TO ORDER AND INTRODUCTORY REMARKS 9:00- 9:05 Dr. H. Kenneth Walker
2. REMARKS FROM THE OFFICE OF THE SURGEON GENERAL, PHS 9:05- 9:15 Dr. Kathleen McCormick
3. CONSIDERATION OF MAY MINUTES TAB I 9:15- 9:20 Dr. H. Kenneth Walker
4. FUTURE MEETING DATES

Winter Meeting: Jan. 24-25, 1995 (T-W)--CONFIRMED

Spring Meeting: May 23-24, 1995 (T-W)--CONFIRMED

Fall Meeting: Sept. 26-27, 1995 (T-W)--PROPOSED

(Subcommittees meet, when necessary.)

(On September 27: Extramural Programs Subcommittee--8:00-9:00 a.m.)

PLEASE NOTE:

(Potential conflicts with Sept. 1995 dates.)

AAHC Annual Meeting, Aspen, CO.

Sept. 27-30, 1995

FLICC Quarterly Meeting, Washington, DC.

September 21, 1995

9/23/94

- |   |                |             |  |
|---|----------------|-------------|--|
| 5. REMARKS BY THE DIRECTOR, NLM   | <u>TAB II</u>  | 9:20-10:00  | Dr. Donald A.B. Lindberg                       |
| a. Budget   | <u>Tab A</u>   |             |  |
| b. Personnel  | <u>Tab B</u>   |             |  |
| c. Legislation  | <u>Tab C</u>   |             |  |
| d. NLM Reinvention Lab  | <u>Tab D</u>   |             |  |
| e. NLM Senior Staff Retreat   | <u>Tab E</u>   |             |  |
| f. NLM and Radiation Studies  | <u>Tab F</u>   |             |  |
| Discussion  |                | 10:00-10:15 | Board Members                                  |
| COFFEE BREAK  |                | 10:15-10:30 |  |
| 6. REMARKS BY THE DEPUTY DIRECTOR FOR<br>EXTRAMURAL RESEARCH, NIH   |                | 10:30-11:00 | Dr. Wendy Baldwin                              |
| 7. MARKET FOR EDUCATIONAL TECHNOLOGY  | <u>TAB III</u> | 11:00-11:45 | Dr. Barry M. Horowitz                          |
| Discussion  |                | 11:45-12:00 | Board Members                                  |
| 8. REGENTS' AWARD   |                | 12:00-12:05 | Dr. H. Kenneth Walker                          |
| LUNCHEON CATERED IN CONFERENCE ROOM B.  |                | 12:05- 1:00 |  |
| 9. REPORT ABOUT NLM FRIENDS' ACTIVITIES   |                | 1:00- 1:30  | Dr. Thomas R. Bryant                           |
| 10. DRAFT FINAL REPORT OF THE PLANNING<br>PANEL ON THE EDUCATION AND TRAINING<br>OF HEALTH SCIENCE LIBRARIANS<br>(Board action required.) | <u>TAB IV</u>  | 1:30- 2:10  | Dr. Elliot Siegel<br>Dr. Thomas Detre          |
| Discussion  |                | 2:10- 2:30  | Ms. Rachael K. Anderson<br>Other Board Members |
| 11. REPORT ON AIDS OUTREACH ACTIVITIES  | <u>TAB V</u>   | 2:30- 3:00  | Dr. Elliot Siegel                              |
| Discussion  |                | 3:00- 3:15  | Dr. Edwin Cortez<br>Other Board Members        |
| Coffee Break--HPCC Training Room  |                | 3:15- 3:30  |  |
| 12. DEMONSTRATION OF TLC  | <u>TAB VI</u>  | 3:30- 4:00  | Dr. Alexa McCray                               |



- |     |  |               |             |  |
|-----|--|---------------|-------------|--|
| 16. | NEW NCBI TOOLS AND SYSTEMS                       | <u>TAB IX</u> | 10:45-11:15 | Dr. David Lipman                           |
|     | Discussion                                       |               | 11:15-11:30 | Dr. Carol M. Newton<br>Other Board Members |
| 17. | ANALYSIS OF DOCUMENT DELIVERY REQUESTS           | <u>TAB X</u>  | 11:30-11:50 | Ms. Eve Marie Lacroix                      |
|     | Discussion                                       |               | 11:50-12:00 | Dr. Edwin M. Cortez<br>Other Board Members |
| 18. | IMAGES FROM THE HISTORY OF MEDICINE VIA INTERNET | <u>TAB XI</u> | 12:00-12:30 | Dr. Philip Teigen<br>Dr. R.P.C. Rodgers    |
| 19. | ADJOURNMENT                                      |               | 12:30       | Dr. H. Kenneth Walker                      |

**DEPARTMENT OF HEALTH AND HUMAN SERVICES**

**NATIONAL INSTITUTES OF HEALTH**

**NATIONAL LIBRARY OF MEDICINE**

**BOARD OF REGENTS**

**MINUTES OF THE 107TH MEETING**

**SEPTEMBER 27-28, 1994**

**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 <sup>1/ 2/</sup>  
September 27-28, 1994**

The Board of Regents of the National Library of Medicine was convened for its one-hundred-and-seventh meeting at 9:00 a.m. on Tuesday, September 27, 1994, in the Board Room of the National Library of Medicine, Bethesda, Maryland. Dr. H. Kenneth Walker, Professor of Medicine at Emory University School of Medicine, chaired the meeting. In accordance with P.L. 92-463 and the Determination of the Director, NIH, as announced in the Federal Register on August 30, 1994, the meeting was open to the public from 9:00 a.m. to 4:15 p.m. on September 27 and from 9:00 a.m. to 12:15 p.m. on September 28. The meeting was closed from 4:15 to 4:45 p.m. on September 27 for the review, discussion, and evaluation of grant applications. A Board roster is enclosed under Attachment A.

**Board members present were:**

|                               |                        |
|-------------------------------|------------------------|
| Dr. H. Kenneth Walker, Chair  | Dr. Robert J. Joynt    |
| Dr. Edwin Cortez              | Dr. Carol M. Newton    |
| Dr. Michael E. DeBakey (9/27) | Dr. George H. Nolan    |
| Dr. John T. Farrar (9/28)     | Dr. Steven J. Phillips |

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

Capt. David S. Kemp, representing Vice Adm. Donald F. Hagen.  
Capt. Kathleen A. McCormick, representing Dr. M. Joycelyn Elders.  
Lt. Col. Kristen Raines, representing Lt. Gen. Alcide M. LaNoue.  
Dr. Richard Rowberg, representing Dr. James H. Billington (9/27).  
Dr. Richard Sheridan, representing Dr. James A. Zimble.  
Ms. Mary Ann Tatman, representing Dr. John T. Farrar (9/27).  
Dr. Paul R. Young, representing Dr. Mary E. Clutter.  
Col. Theodore F. Yurkosky, representing Lt. Gen. Edgar R. Anderson.

**Board Members Absent:**

|                       |                     |
|-----------------------|---------------------|
| Ms. Beverly E. Allen  | Ms. Naomi C. Booker |
| Ms. Pamela Q.J. Andre |                     |

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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. This procedure applies only to individual discussion of an application and not 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 Schoolman, Deputy Director for Research and Education  
Dr. Michael Ackerman, Acting Associate Director, SIS  
Mr. Harry Bennett, Deputy Director, OCCS  
Mr. Fernando Burbano, Director, Information Systems  
Mr. Kenneth Carney, Executive Officer, OD  
Ms. Lois Ann Colaianni, Associate Director, LO  
Dr. Milton Corn, Acting Associate Director, EP  
Dr. George J. Cosmides, Deputy Associate Director, SIS  
Dr. Roger W. Dahlen, Chief, Biomedical Information Support Branch, EP  
Mr. Charles Goldstein, Chief, Information Technology Branch, LHNCBC  
Mr. Earl Henderson, Deputy Director, LHNCBC  
Ms. Betsy Humphreys, Assistant Director for Health Services Research Information  
Dr. Lawrence Kingsland III, Assistant Director for Applied Informatics  
Mr. Sheldon Kotzin, Chief, Bibliographic Services Division, LO  
Ms. Eve Marie Lacroix, Chief, Public Services Division, LO  
Ms. Sue Levine, Chief, Office of Financial Management, OD  
Dr. David Lipman, Director, National Center for Biotechnology Information  
Ms. Becky Lyon, Head, National Network Office, LO  
Dr. Alexa McCray, Chief, Educational Technology Branch, LHNCBC  
Mr. Robert B. Mehnert, Chief, Office of Inquiries and Publications Management, OD  
Mr. David Nash, Equal Opportunity Officer, OD  
Dr. Elliot R. Siegel, Associate Director, Health Information Programs Development  
Mr. Phillip Teigen, Deputy Chief, History of Medicine Division, LO  
Mr. Richard T. West, Chief, Office of Program Planning and Evaluation, EP

**Others present included:**

Dr. Wendy Baldwin, Deputy Director, Extramural Research, NIH  
Ms. Rachael K. Anderson, Director, Health Sciences Center Library, University of Arizona  
Dr. Thomas R. Bryant, Chairman, Friends of the NLM  
Dr. Thomas Detre, Sr. Vice Chancellor for Health Sciences, University of Pittsburgh  
Dr. Barry M. Horowitz, President and CEO, The Mitre Corporation, McLean, VA  
Ms. Pam Moore, Capital Publications, Alexandria, VA  
Mr. Neil Rambo, Associate Director, Pacific Northwest Region National Network of Libraries of Medicine, University of Washington, Seattle  
Mr. Karl Uhlendorf, "The Blue Sheet"

## **I. OPENING REMARKS**

Dr. H. Kenneth Walker, Chair, welcomed the Regents, consultants, and guests to the 107th meeting of the Board of Regents of the National Library of Medicine. He recognized three new appointed members: Dr. Marion Ball, Vice President for Information Services at the University of Maryland; Dr. Michael E. DeBakey, Chancellor of the Baylor College of Medicine; and Dr. George H. Nolan, Director of Obstetrics and Gynecology at the Henry Ford Hospital in Detroit. Dr. Walker noted several new ex officio alternates: Col. Theodore Yurkosky, Associate Director of the Air Force Medical Operations Agency and Dr. Paul Young, attending for Dr. Mary E. Clutter; Dr. Michael Sheridan of the Uniformed Services University of the Health Sciences was attending for Dr. Zimble; Ms. Mary Ann Tatman was attending for Ms. Wendy Carter of the Department of Veterans Affairs; and Lt. Col. Kristin Raines was attending for Col. Emmanuel Cassimatis.

## **II. REPORT FROM THE SURGEON GENERAL'S OFFICE**

Dr. Kathleen McCormick, representing the Surgeon General, reported briefly several items: the PHS Commissioned Corps is engaged in a 14-item "rejuvenation" plan; a PHS Bicentennial Celebration is being prepared that will make use of NLM's historical resources; PHS is working on implementing Executive Order 12839, which requires a reduction in senior level personnel; the Surgeon General's Office is currently involved in several legislative matters, including one on the confidentiality of medical records; and finally, the Surgeon General's office is pleased with the greatly increased use of NLM's AIDS-related databases as a result of their being made free of charge, and compliments the Library and the Board of Regents on taking that action.

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

The Regents approved the minutes of the May 24-25, 1994, meeting, without change.

## **IV. DATES OF FUTURE MEETINGS**

The Board will meet next on January 24-25, 1995. The next spring meeting will be May 23-24. The proposed dates of September 26-27, 1995, were accepted and confirmed for the next fall meeting.

## **V. REPORT FROM THE NLM DIRECTOR**

Dr. Donald A. B. Lindberg reported first on budget matters. The FY 1995 President's budget request was for \$138,521,000; the House NLM budget was for \$125,906,000; the Senate figure was \$129,906,000. The compromise figure was \$128,906,000, a level that Dr. Lindberg is pleased with. As to personnel matters, he reported briefly on Federal efforts to downsize agency staffs. Recruitment at NLM and NIH has been essentially frozen. One bright spot has

been the success of the National Center for Biotechnology Information in recruiting fellows to its program. Dr. David Lipman, NCBI Director, introduced several of the new fellows: Dr. Heidi Sophia, Dr. Myung S. Chung, Dr. Andreas Baxevanis, and Mr. Douglas Bassett. Mr. Roland Walker will be joining the staff soon as a pre-doctoral fellow. Mr. Fernando Burbano, head of the Office of Computer and Communications Systems, introduced new staff member Jon Rutherford, formerly of the Peace Corps; Dr. Richard Rodgers, of the Lister Hill Center, introduced John Kunze of the University of California (Berkeley) who is working with LHC for one year under the Intergovernmental Personnel Act. Dr. Lindberg, to the applause of the Regents, presented to Dr. Rodgers the Public Health Service Commendation Medal.

On the legislative front, Dr. Lindberg reported on the High Performance Computing and Communications bill ("Gore II"). House and Senate versions have been passed but must be reconciled before enactment. It has since been derailed. Regardless, he said, there has been widespread acceptance of the concept of the National Information Infrastructure--the information superhighway. What has been moving forward, Dr. Lindberg reported, is the interagency effort to "Reinvent Government." NLM has applied (and been approved) to be a "Reinvention Laboratory" within the Department, a distinction that allows the Library to operate more efficiently by expediting procurement actions, budget reprogramming, personnel practices, publications clearances, and customer surveys. Dr. Lindberg told the Board that NLM senior staff held a two-day retreat in August to consider how successfully the Library was implementing the 1986 Long-Range Plan (and its periodic updates) and whether any mid-course corrections were needed. A more complete report on the retreat could be made to the Board at a future meeting. The NLM Director also reported on the work the Library is doing to identify and track down published literature related to human radiation studies during the approximate period 1945 to 1970. This is a government-wide effort involving the Public Health Service and the Energy, Defense, Veterans, and other departments. Much of the pertinent literature predates the advent of online databases and requires extensive manual searching. One result, Dr. Lindberg said, is the decision by NLM to computerize the earlier (pre-1966) references. Dr. Michael DeBakey and Ms. Rachael Anderson both voiced their support for the decision to build computerized files for earlier years of the medical literature.

## **VI. RESOLUTION HONORING THELMA CHAREN**

Ms. Rachael Anderson proposed a resolution of the Board of Regents congratulating Thelma G. Charen of the Medical Subject Headings Section on completing 50 years of service to the NLM. The Board unanimously approved the resolution (Attachment B).

## **VII. REPORT FROM THE NIH DEPUTY DIRECTOR FOR EXTRAMURAL PROGRAMS**

Dr. Wendy Baldwin spoke about "reinvention" and NIH's Extramural Programs. It is important that we have a clear vision of the ultimate purpose, which is, simply "to do good science." To this, for Extramural Programs, may be added "and adhere to proper stewardship of Federal funds." There are, in addition, several precepts to reinvention: Processes have to be fair and

efficient; people outside should be able to deal with NIH as a single entity (since investigators frequently are funded by several Institutes during their careers); and because the NIH components vary greatly in size and mission (at any one time there are 30,000 grants being funded), we have the flexibility to experiment selectively in introducing new ways of doing things. Several committees have been set up to study different aspects of the grant process--from preapplication to review to post-award activities. There is also an overarching "reinvention committee." Dr. Baldwin said that coverage in the science press about NIH's extramural reinvention activities has for the most part been positive. She described a "reinvention roundtable" held by NIH Director Varmus on July 14, 1994, at which several topics served as discussion openers: structure and operation of study sections and review groups; the possibility of "modular" grants--having fixed awards like grants-in-aid; retrospective review--basing decisions on an investigator's track record; noncompeting renewals; and electronic administration of the grant process.

## **VIII. MARKET FOR EDUCATIONAL TECHNOLOGY**

Dr. Barry M. Horowitz, President and CEO of The Mitre Corporation, spoke about the great potential technology-based education in K-12. Using it, teachers can spend more time giving individual attention to students who are proceeding at their own pace through educational software programs. The explosion of such educational technology-based programs is changing the way many teachers teach. Dr. Horowitz reviewed both the many advances in recent years and the problems they have brought. Americans are finally realizing that technology is an important part of our national wealth, he said. In Massachusetts (where Dr. Horowitz is located) 73 percent of the jobs being created use technology. The 1994 Technology Act calls for the Department of Education to set up a "czar for educational technology," and it also sets up a fund of \$400 million for projects related to educational technology. Approximately one to two billion dollars are spent each year nationwide on educational technology in the schools, so the money contained in the bill is comparatively a substantial sum. An additional \$400 million is being spent on education projects by the various agencies--NASA, DOD, NIH, etc. With additional moneys being spent on the National Information Infrastructure, a total of about \$1 billion is being funneled to educational technology by the Federal Government. There are also many state and private sector initiatives in this area. The business community, however, is disorganized in how it approaches educational technology for the schools. One reason for this is that the American educational system is so decentralized. Training remains a big problem--many of the teachers graduating from teachers colleges are not being trained in the use of educational technology. Finally, Dr. Horowitz listed a number of things that could be done to speed up the introduction of technology based education in the schools. These included: raising the public's interest through increased publicity, organizing volunteer workforces (on loan from business, retirees, etc.), increased coordination through consortiums and sharing, and centrally organizing school developments in technology so that business finds it easier to interact with the educational establishment.

## **IX. REGENTS' AWARD FOR SCHOLARSHIP OR TECHNICAL ACHIEVEMENT**

Dr. H. Kenneth Walker presented the 1994 Board of Regents' Award for Scholarship or Technical Achievement to Dr. Lawrence Hunter of the Lister Hill Center. Dr. Lawrence Kingsland of the Lister Hill Center recounted the many accomplishments of Dr. Hunter, including his book, *Artificial Intelligence and Molecular Biology*, which represents a significant contribution to science and points the way to new potential for computer science and informatics to improve biomedical knowledge. The citation on the award reads "for outstanding achievements in the field of artificial intelligence and for conception, inspiration, and contribution to the book *Artificial Intelligence and Molecular Biology*."

## **X. REPORT ON NLM FRIENDS' ACTIVITIES**

Dr. Thomas R. Bryant, President of the Friends of the National Library of Medicine, recounted for the Board how the Friends organization began back in the mid-eighties. Prime movers in its development, in addition to Dr. Bryant, were Paul Rogers, who had served in the House of Representatives for many years, and Jack Whitehead, a successful businessman in the health area. Keith Krueger is the Executive Director. One of the first major challenges facing the Friends was to help the NLM organize and carry off its ambitious year-long 150th anniversary in 1986. The Friends has sponsored a number of conferences on behalf of the NLM, the most recent being yesterday's conference on High Performance Computing and Communications, chaired by Dr. Michael DeBakey. At present, there are 75 corporate, 100 institutional, and several hundred individual members of the Friends organization. All the major pharmaceutical manufacturers are members. Mr. Krueger then brought the Board up to date on a number of current activities, including a series of print public service announcements the Friends will be sending out next year on behalf of the NLM. He said that packets of information about the Friends would be sent to all Board members in the near future. Following the presentations by Dr. Bryant and Mr. Krueger, Dr. DeBakey said the Friends organization is becoming ever more vital to the operation of the NLM. He suggested that the rapidly growing number of HMO-type organizations be approached about membership. Dr. DeBakey added that yesterday's conference on High Performance Computing and Communications was a fine example of the kind of program the Friends does best.

## **XI. DRAFT FINAL REPORT OF THE PLANNING PANEL ON THE EDUCATION AND TRAINING OF HEALTH SCIENCE LIBRARIANS**

Dr. Thomas Detre, Senior Vice Chancellor for Health Sciences at the University of Pittsburgh, complimented Dr. Elliot Siegel and Ms. Susan Buyer of the NLM staff for their outstanding support during the entire planning process. They have done an outstanding job in pulling together in the draft report the views and recommendations of a wide variety of constituents. [Dr. Detre at the last Board meeting (May 24-25, 1994) described the evolving health care milieu--health care alliances, academic medical centers, primary care patterns--and the role that information professionals may be called on to play. Several of the major recommendations, including a new program concept of "challenge awards," were previewed at that meeting.] At

the last Board meeting, Dr. Detre said, we were still looking forward to some action on health care reform. It is clear there will be no action in the near future and he decried the fact that, as a result, many millions of Americans still have no health insurance, or have inadequate health insurance, and that many who have an antecedent history of health problems continue to be discriminated against. He warned that current trends may portend the decay of the "unique ecology that stimulated and nurtured the biomedical research enterprise," including NLM's outstanding initiatives. The implementation of the Panel's recommendations will be one step in protecting the infrastructure of the academic health centers that are the heart of this enterprise.

Following Dr. Detre's presentation, former Board chair, Rachael Anderson, who participated in the work of the Panel, said that the health science librarian community is eagerly anticipating the release of the report and its recommendations. The profession sees NLM as having a role as catalyst in promoting cross-professional and other collaborations. In the future we are going to see much more heterogeneity in the health science library professions--in the roles and skills that librarians need. Ms. Anderson perceives a growing recognition by employers and librarians of the importance of information services, especially as our health care environment changes. Librarians are recognizing that changes in the forms of medical information and in the health care environment call for significant changes in their training and also for intensive retraining of those in the profession. The report includes initiatives for NLM in implementing various recommendations, including a program of "challenge grants." She urged the Board to approve the report and to help publicize its findings.

Dr. Walker said that Dr. Detre's predictions for the health care delivery system of the future (page i.v. of the report) were wise and insightful. These are wide-ranging observations about hospitals, health care networks, VA medical centers, the major academic medical centers, the role of the various health professions, clinical guidelines, outcome measures, and new tests and procedures derived from genetics research. They set the stage very well for considering the high-technology roles of librarians in the health sciences. Dr. Walker said that one need of the profession is an increased ability to "advertise itself"--to let others know about their capabilities. Dr. Michael DeBakey said that health centers are being squeezed for funds--how could an expanded role for biomedical librarians be financed? Dr. Detre said that joint actions that combine the strengths of various segments in the health community will be required, and that legislators, who hold the purse-strings, must be "educated." Dr. Richard E. Rowberg commented that improved communication and information networks may actually help in containing costs and be a stimulus to developing the innovations called for in the report. Dr. Robert J. Joynt said that the problem of medical librarians not "selling their goods" is a real one. They are in a key spot to play an important role not only in the development of new information systems, but in educating patients. In Iowa, Dr. Steven J. Phillips said, there is a bill in the state legislature specifying that any new HMO-like organization approved for Iowa must be approved by the University. This offers a glimmer of hope for rationalizing the system.

The Board of Regents voted unanimously to approve the draft final report of the Panel as presented.

## **XII. REPORT ON AIDS OUTREACH ACTIVITIES**

Dr. Elliot R. Siegel, NLM Associate Director for Health Information Programs Development, recounted NLM's AIDS-related activities of the past year, several of which have already been reported to the Board. NLM and NIH sponsored a June 1993 conference on AIDS information services, from which a report with a number of recommendations emanated. One result was a press conference held by NLM in conjunction with last January's Board meeting, at which it was announced that four of NLM's databases containing AIDS-related information would be free of charge to all users. Use of NLM's AIDS-related databases has increased 50 percent, as a result of the announcement of free access and the signing up of new users. Other recommendations in the report had to do with reaching out to groups who have not traditionally used NLM's services--public libraries and community groups of various kinds. In May, NLM announced that it would make small awards (up to \$25,000) to local organizations (forming partnerships was encouraged) to enable them to purchase computer and telecommunication equipment, and to gain training in the use of NLM's and other databases. Of 87 applications, NLM was able to fund 19. A proposal from a multi-library and community consortium in Detroit was accepted by NLM that will help us learn how database access and use can be encouraged and supported in an inner-city environment. Dr. Siegel also described briefly several other AIDS-related outreach collaborations, such as a training-the-trainer project in Philadelphia and a peer training experiment to teach Hispanic teenagers about access to electronic information systems in Springfield, Mass. Dr. Siegel summarized by saying that the success of these projects with groups with whom NLM has not traditionally worked is by no means assured. They are in some sense, high risk. The results, however, should be interesting, and just might point the way to future directions for the NLM.

Following Dr. Siegel's presentation, Dr. Edwin M. Cortez made several observations on NLM's becoming involved with community-based organizations for HIV/AIDS outreach. It will be crucial for NLM to develop more user-friendly interface products (such as Grateful Med). NLM should cooperate with other database distributors that have popular databases and user-friendly interfaces, such as DIALOG's "Target." He also emphasized the importance of using the Internet as a means of delivering information that is well organized. Dr. Cortez looked at the recent non-biomedical literature on community support for outreach efforts and identified two items of special interest. The first is a retrospective comparison (1987) between the amount of HIV/AIDS literature published in popular journals (5000+ items) and the HIV/AIDS literature published in library-science journals (2 items only). Updated to 1994, a search of electronic databases turned up 4,800 items in the popular literature and only one in the library-science literature. This apparent lack of enthusiasm on the part of librarians must be taken into account by NLM when designing outreach programs, he said. The second study (1990) examined the policies adopted by public libraries in the area of HIV/AIDS information. The study showed significant variance between the perceptions and attitudes of library directors and administrators of community HIV/AIDS programs. It concluded that there were five areas of potential cooperation between public libraries and the HIV/AIDS agencies: joint collection of resources; cooperative programming, e.g., cosponsorship of workshops; centralized circulation and inventory of resources by the library; human resource sharing and networking; and reference services by the libraries for end users.

### **XIII. THE LEARNING CENTER FOR INTERACTIVE TECHNOLOGY**

The Regents visited the The Learning Center for Interactive Technology in the Lister Hill Center Building and saw demonstrations of various interactive medical educational software.

### **XIV. REPORT FROM EXTRAMURAL PROGRAMS**

Dr. Roger W. Dahlen, Chief of the Extramural Programs' Biomedical Information Support Branch, reported briefly on EP's budget for FY 1994 and noted that all available funds will be used by September 30. He then asked Mr. Peter Clepper, EP Program Officer, to report on the status of the Electronic Medical Record. In February of this year, Mr. Clepper said, a "Request for Application" was issued under the cooperative agreement mechanism for research and development of electronic medical record systems. By late April, NLM had received 94 applications. Because of the large number and short turn-around time, a triage process was used with ten outside consultants to identify those applications that were fully responsive to the RFA. The remaining applications--36 in all--were reviewed in early August by a second group of 15 outside consultants who agreed that eight proposals were of outstanding quality. With the collaboration of AHCPR (Agency for Health Care Policy and Research) and individually negotiated budget cuts, it appears that all eight will be funded--five by the end of the fiscal year and three in early FY 1995. The EP Subcommittee of the Board and the entire Board concurred with the initial review via a telephone conference call and mail ballot.

#### **MEETING CLOSED FOR THE REVIEW OF GRANT APPLICATIONS**

**September 27, 1994, 4:15 to 4:45 P.M.**

### **XV. REVIEW OF PENDING APPLICATIONS**

The Board reviewed 66 applications, requesting \$35,545,984 and recommended for further consideration 56 applications in the amount of \$31,979,262 for the total requested. Ten applications in the amount of \$3,566,722 were not recommended for further consideration. Grant applications recommended for further consideration by the Board are listed in the summary action (Attachment D.)

#### **MEETING OPEN--SEPTEMBER 27, 1994, 9:00 A.M. TO ADJOURNMENT**

### **XVI. PROMOTING INTERNET ACCESS**

#### **A. Connecting Medical Libraries--NN/LM Survey**

Ms. Becky Lyon, Head of NLM's National Network Office, described to the Board a two-part survey of the 4,000 member libraries in the National Network of Libraries of Medicine. The



survey, which was carried out in 1993 by the eight Regional Medical Libraries, had two objectives: to see how many members had access to a satellite downlink and to establish a baseline on the availability of Internet access to network libraries. The response rate was 83 percent (2100, or 63 percent, from hospitals). Slightly less than half (48 percent) of the hospitals reported having satellite downlink facilities (58 percent of the academic institutions had this). As to Internet access, Ms. Lyon reported the survey revealed that 24 percent (500) of the hospital libraries, 73 percent (383) of the academic institutions, and 37 percent (259) of "other" institutions had access. Ms. Lyon also reported other data collected: type of access--dial-up access versus leased line; whether libraries were charged for their access; and which of the available Internet capabilities they used (e-mail was the top vote-getter). They also hoped to find out what NLM and the RMLs might do to help network members obtain or make use of access. Among the reasons cited by those who were not connected: lack of funding (nearly half), lack of knowledge about the Internet (21 percent), lack of knowledge about how they would use it (17 percent), and no computer available (147 respondents). The respondents said they required more information about the Internet, training, and persuasive arguments to present to administrators about the benefits of access. Ms. Lyon said that NLM has funded three major projects in this area. The first, in the Pacific Northwest, will be described by Mr. Neil Rambo. The second (recently funded in the Greater Midwest Region) is to connect one hospital librarian and one health professional in each of eight institutions to a variety of service providers. NLM hopes to find out the costs, difficulties, level of service provided, applications, and need for training. The third project, just completed in Massachusetts, connected 20 hospital libraries to the Internet. Ms. Lyon described some of the findings of that project. She also summarized what was being done network-wide by the RMLs: providing information such as newsletters and fact sheets, maintaining awareness of what was happening in the various states concerning Internet connections, creating and maintaining regional "listservs," sponsoring "technology fairs," and developing regional training courses and training materials. An NN/LM World-Wide-Web server will soon be available, initially run out of the Pacific Northwest Regional Medical Library. A video is also being produced to assist librarians in convincing hospital administrators of the benefits of access. All RMLs provide a list of Internet service providers in their areas. They also promote NLM's Internet "connections" grant program. Ms. Lyon concluded by saying that the academic health science libraries ("resource libraries" in the NN/LM) have been a great help to NLM in getting hospitals hooked up to the Internet.

## B. Connecting Libraries in the Pacific Northwest

Mr. Neil Rambo, Associate Director of the Pacific Northwest Regional Medical Library (Region 6) at the University of Washington (Seattle), reported to the Board about the Internet Connections Project carried out in the five-state Pacific Northwest Region by the RML. At the beginning of the project (three years ago), not one community hospital in the entire region had access to the Internet. Very few teaching or research hospitals were connected. Because one focus of Region 6 is to serve rural and underserved areas, the RML decided to embark on a special outreach project based on the Internet. NLM agreed that funds from the National Network of Libraries of Medicine program be invested in this, even before the NLM-National Science Foundation "Connections Grant" program was begun. The RML worked with librarians at selected hospitals; a mix of hospitals and a variety of locations was involved. Seven sites in five states were selected, ranging in size from 22 to 360 beds. NorthWestNet was the service

provider for connecting the hospitals to the Internet. Along with physically connecting hospitals, the Project sought to find out what applications the librarians and other staff would find most useful. Could the librarian serve as a change agent for the entire institution? Mr. Rambo briefly reported how the hospitals were chosen and how their librarians were trained at the University of Washington. Among the applications used, Mr. Rambo noted: e-mail, discussion groups, and access to online databases. Transmission of actual documents will be tested in the future. After two years, hospital librarians at all seven sites now have access to and are using the Internet in various degrees. There has been widespread interest in the project throughout the region, Mr. Rambo said. Today, 45 percent of hospitals throughout Region six (compared to 24 percent nationwide as reported by Ms. Lyon) now have some form of Internet access. The figure for the region rises to 75 percent when considering just those hospitals that have a librarian on the staff. Only six percent of hospitals without a librarian have access. This demonstrates the effectiveness of RML staff "barnstorming" around the region pushing Internet access. Mr. Rambo briefly characterized several problem areas that recurred--mostly technical, organizational, and budgetary in nature. In general, he said, Internet is "heaven" for librarians and "hell" for most clinicians. The latter find it difficult and time-consuming to navigate. An extension of the present project began October 1, 1994. This will investigate the possibility of using SLIP/PPP connections at up to 20 different sites around the region, using various access providers. Mr. Rambo distributed a new brochure, "From Bench to Bedside," published by the RML, that describes the umbrella program that this pilot Internet connections project fits under.

### C. Overview of Connection Grants

Dr. Milton Corn, Acting NLM Associate Director for Extramural Programs, referring to Mr. Rambo's comment that the Internet was "hell" for clinicians, said that the most important factor in getting health professionals to use the Internet will be the development of critical applications that are directly relevant to their work. Bibliographic searching, for example, while critical to the work of a librarian, is less central to the daily responsibilities of a busy clinician. What is needed is for similarly crucial applications to be developed for hospital administrators and other health professionals. Dr. Corn described the NLM/National Science Foundation cooperative "Internet Connections" program. It is modeled on an existing NSF program and is funded through an Interagency Agreement. Under the program, health care institutions may apply to the NLM for two types of grants--up to \$30,000 for an initial connection and up to \$50,000 to encourage existing Internet-connected hospitals to extend services to affiliated institutions. Because the program has been a success and will be continued, it will be administered directly by the NLM beginning October 1, 1994. Dr. Corn presented a listing of the 43 academic institutions, hospitals, and professional organizations that received a total of \$1.5 million in connection grants over the three years of the program. Because of the multiplier effect of the \$50,000 grants, the number of institutions hooked up is at least three times the number of awards. The award rate is 66 percent. Dr. Corn said that it would be desirable to make more awards to community hospitals; they traditionally are less familiar with the federal grant application process and probably could benefit from assistance in filling out the application.

Dr. Paul Young, NSF, inquired, in light of the comments about clinicians finding the technology to be formidable and of questionable utility, how effectiveness was measured. Dr. Lindberg said

that the program was not aimed at major academic health science institutions, but at smaller institutions where much of the nation's health care is being delivered. NLM hopes to have an effect on practice through these institutions. Dr. Walker commented that we do have reliable evidence, apart from the Internet, about how useful MEDLINE and other online services are in clinical practice.

## **XVII. NEW NCBI TOOLS AND SYSTEMS**

Dr. David Lipman, Director of NLM's National Center for Biotechnology Information, said that the NCBI is a research component of the NLM and it also engages in providing services. In the last year, he said, more than 20,000 different sites accessed the NCBI system; more than 10,000 electronic queries a day are received. New CD-ROM products are released every two months. Not only is access available by e-mail server and various client-server programs (e.g., Mosaic), but also from commercial groups that sell software incorporating the client parts of NCBI software. This greatly expands the potential user base. Dr. Lipman introduced several of his colleagues who then helped him to conduct an online demonstration of the Entrez sequence information retrieval system. He showed several recent enhancements to the system, including a neighboring text search and retrieval capability. He used the example: "What are the policy implications in the insurance industry regarding genetic testing?" In a matter of seconds, 1.2 million MEDLINE records were searched and ranked for relevance. Identified relevant articles may themselves be used as exemplars to retrieve more. In another example, Dr. Lipman "moused" a paragraph of interest (on otitis media) from the *Physicians Desk Reference* into the system and quickly located articles on that subject.

Following Dr. Lipman's presentation, Dr. Carol Newton commented that what he showed is an example of how when one becomes deeply immersed in a particular applications area (such as biotechnology), one can sometimes develop ideas and products of more general application (such as the neighboring concept used to locate additional information). She is amazed by the rapidity of progress by NCBI staff in instituting enhancements to the sequence database services. Dr. McCormick suggested the desirability of integrating information found from a search such as that done by Dr. Lipman (on otitis media) with other information such as published clinical guidelines, which also exist in an online form. Dr. Lipman said this was being done for the full MEDLINE database and agreed this would be an exciting possibility in using the sequence database.

## **XVIII. ANALYSIS OF DOCUMENT DELIVERY REQUESTS**

Ms. Eve-Marie Lacroix, Chief of the Public Services Division, said that today's interlibrary loan system has not changed much in 30 years. Although the requesting and delivery systems are improving, libraries must still retrieve, photocopy and sent printed materials. It would be desirable to have articles in electronic form so that transmission could be instantaneous. NLM has conducted several studies over the years on the 200,000-300,000 ILL requests the Library receives each year and found that NLM would need more than 12,000 different journals to provide all the articles requested.

Some three million requests are input each year into the DOCLINE ILL request and referral system now used by 2,700 libraries in the U.S. Using DOCLINE data (and data from other sources), NLM analyzed four million requests entered into the DOCLINE system in 1991 and 1992. NLM found that nearly 20,000 unique journal titles were requested systemwide. There are approximately 24,000 biomedical serial titles extant. Very few of the journals are heavily used (54 percent were requested fewer than 10 times in a year). Ms. Lacroix showed a list of the heavily used titles; they tend to have long runs (such as *JAMA*). Most requests for the heavily used titles are filled at the local and regional levels. The most remarkable finding was that 76 percent of the millions of articles requested each year are requested only once. Of the 3700 journals currently being indexed for MEDLINE, only 104 were not requested during the year under study. English-language articles accounted for 92 percent of those requested. Sixty-seven percent of the articles requested were published in the last five years. About 38 percent of the journals that were requested on ILL were in MEDLINE, however 84 percent of the requested articles were in MEDLINE. The results of this study should give pause to anyone planning to put journal articles in electronic form for purposes of interlibrary loan.

Dr. Cortez commented that the survey being reported is unique in its comprehensiveness. The findings are in line with other ILL studies in other fields. There is an observable constant between the number of ILL requests and the number of journal titles necessary to fill those requests. A large number of ILL requests can be filled with a small number of titles; but to fill *all* the requests requires a disproportionately large number of titles. The analysis supports the need for NLM to have a continuing role as a repository for biomedical journals. What is important in looking at these data is not the low per capita use, but the high total volume of interlibrary loan transactions. This demonstrates that libraries are making wide use of the research literature and that the NLM has a crucial role. Finally, although it may not be feasible to put articles in electronic form now, this may change as the technology advances.

## **XIX. ADJOURNMENT**

The meeting was adjourned at 12:15 p.m., Wednesday, September 28.

\* \* \* \* \*

Subcommittee Meeting on Tuesday, September 27:

Extramural Programs Subcommittee--8:00-9:00 a.m.  
(Attachment C)

\* \* \* \* \*

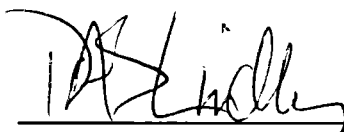
## **ACTIONS TAKEN BY THE BOARD OF REGENTS**

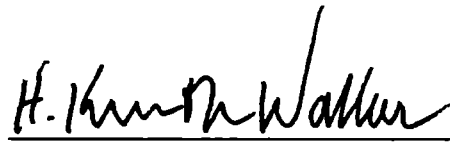
1. The Board approved a resolution congratulating Thelma G. Charen of Medical Subject Headings Section on her 50 years of service to the National Library of Medicine (Attachment B.)

2. The Regents Award for Scholarship or Technical Achievement was presented to Dr. Lawrence Hunter of the Lister Hill National Center for Biomedical Communications "for outstanding achievements in the field of artificial intelligence and for conception, inspiration, and contribution of the book Artificial Intelligence and Molecular Biology."
3. The Board approved the draft final report of the Planning Panel on the Education and Training of Health Science Librarians.
4. The Board concurred with the recommendations of the Extramural Programs Subcommittee. Grant applications recommended for further considerations 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

  
H. Kenneth Walker, M.D. (Date)  
Chair

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**RESOLUTION IN HONOR OF  
THELMA GOLDEN CHAREN  
COMMEMORATING FIFTY YEARS OF SERVICE TO  
THE NATIONAL LIBRARY OF MEDICINE AND ITS PREDECESSORS**

**Adopted by the**

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

**September 27, 1994**

**WHEREAS** Thelma G. Charen has demonstrated unique talents of creativity, scholarship, and unflagging enthusiasm that have contributed to the pre-eminence of the National Library of Medicine publications and databases; and

**WHEREAS** Thelma G. Charen has, through her knowledge and her wit, enriched the lives of all those whom she has instructed, both in formal and informal settings; and

**WHEREAS** Thelma G. Charen has given totally of herself professionally and personally in her dedication to the National Library of Medicine and its missions; and

**WHEREAS** Thelma G. Charen has been throughout her career a staunch believer that service in the United States Government is a high honor; therefore

**BE IT RESOLVED** that the Board of Regents acknowledges on behalf of the National Library of Medicine and the biomedical community a debt of gratitude for the contributions of Thelma G. Charen during her fifty years of U.S. Government service and wishes her continued success as she embarks on her second fifty years.

**BOARD OF REGENTS**  
**EXTRAMURAL PROGRAMS SUBCOMMITTEE MEETING**

**September 27, 1994**

**8:00 to 9:00 a.m.**

**ATTENDEES**

**Subcommittee Members Present:**

Dr. H. Kenneth Walker, Chair  
Dr. Robert J. Joynt  
Dr. Kathleen A. McCormick

**NLM Staff Present:**

Dr. Milton Corn, Acting Associate Director, EP  
Mrs. Ruth Bortz, Grants Specialist, EP  
Dr. Roger W. Dahlen, Chief, Biomedical Information Support Branch, EP  
Ms. Andrea Epstein, Grants Assistant, EP  
Dr. Jack Hahn, Special Assistant to the Associate Director, EP  
Mrs. Frances Johnson, Program Officer, EP  
Mr. Richard T. West, Chief, Office of Program Planning and Evaluation, EP

APPLICATIONS APPROVED BY COUNCIL  
 (ARRANGED NUMERICALLY BY PROGRAM)  
 PROG. CLASS: 1994  
 INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE  
 COUNCIL DATE: AUGUST 1994

| APPLICATION NUMBER | PROJECT TITLE  | AMOUNTS<br>RECOMMENDED                 |
|--------------------|--|--|
| 1 U01 LM05802-01   | DUALS SECONDARY REVIEW: HS<br>A CLINICAL VOCABULARY TESTBED AT YALE MEDICAL CENTER     | 01 158,850<br>02 165,833<br>03 177,442 |
| 1 U01 LM05804-01   | DUALS SECONDARY REVIEW: HS<br>GEODE-CM: A FRAMEWORK FOR GUIDED DATA ENTRY              | 01 160,293<br>02 164,086<br>03 168,028 |
| 1 U01 LM05805-01   | DUALS SECONDARY REVIEW: HS<br>AUTOMATED EVALUATION OF PRACTICE GUIDELINES              | 01 423,994<br>02 445,194<br>03 467,454 |
| 1 U01 LM05806-01   | DUALS SECONDARY REVIEW: HS<br>DESIGN AND EVALUATION OF A MULTIPURPOSE PSYCHIATRIC EMRS | 01 400,199<br>02 440,862<br>03 421,773 |
| 1 U01 LM05809-01   | DUALS SECONDARY REVIEW: HS<br>DECISION THEORETIC DISSEMINATION OF PRACTICE GUIDELINES  | 01 223,931<br>02 194,779<br>03 202,566 |
| 1 U01 LM05816-01   | DUALS SECONDARY REVIEW: HS<br>GENETIC DISORDERS VOCABULARIES SUITABLE FOR AN EMRS      | 01 320,890<br>02 331,972<br>03 352,318 |
| 1 U01 LM05817-01   | DUALS SECONDARY REVIEW: HS<br>A COMPREHENSIVE APPROACH TO AN ELEC. MED. RECORD SYSTEM  | 01 191,949<br>02 198,035<br>03 192,153 |
| 1 U01 LM05823-01   | DUALS SECONDARY REVIEW: HS<br>ELECTRONIC PATIENT HEALTH RECORD                         | 01 447,294<br>02 362,582<br>03 366,386 |

| APPLICATION NUMBER | PROJECT TITLE  | AMOUNTS<br>RECOMMENDED                 |
|--------------------|--|--|
| 1 U01 LM05830-01   | DUALS SECONDARY REVIEW: HS<br>TERMINOLOGY KNOWLEDGEBASE FOR CLINIC COMPUTING           | 01 145,232<br>02 114,425<br>03 118,786 |
| 1 U01 LM05836-01   | DUALS SECONDARY REVIEW: HS<br>DEMONSTRATING VALUE IN ELECTRONIC MEDICAL RECORD SYSTEMS | 01 500,000<br>02 500,000<br>03 500,000 |
| 1 U01 LM05844-01   | DUALS SECONDARY REVIEW: HS<br>CAREGIVER USE OF HEALTH STATUS MEASURES IN THE EMR       | 01 143,012<br>02 117,811<br>03 169,701 |
| 1 U01 LM05845-01   | DUALS SECONDARY REVIEW: HS<br>AUTOMATED TOOLS TO SUPPORT HEALTH SERVICES RESEARCH      | 01 232,532<br>02 227,134<br>03 231,305 |
| 1 U01 LM05847-01   | DUALS SECONDARY REVIEW: HS<br>USING EMR DATA TO IMPROVE CLINICAL CARE/PUBLIC HEALTH    | 01 104,291<br>02 110,550<br>03 117,183 |
| 1 U01 LM05849-01   | DUALS SECONDARY REVIEW: HS<br>A PROSPECTIVE TRIAL OF A COMPUTER CODING SYSTEM          | 01 490,785<br>02 445,334<br>03 454,769 |
| 1 U01 LM05854-01   | DUALS SECONDARY REVIEW: HS<br>A POINT OF CARE COMPUTER-BASED AMBULATORY PATIENT RECORD | 01 229,350<br>02 274,286<br>03 286,052 |
| 1 U01 LM05855-01   | DUALS SECONDARY REVIEW: HS<br>USE OF ELECTRONIC RECORDS TO ACCESS CLINICAL QUIDLINES   | 01 343,927<br>02 359,665<br>03 359,665 |

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|--------------------|--|--|
| 1 U01 LM05857-01   | DUALS SECONDARY REVIEW: HS                               | 01 304,197<br>02 293,745<br>03 305,495 |
|                    | CONTROLLED VOCABULARY IN PRIMARY CARE ELECTRONIC RECORDS |  |
| 1 U01 LM05858-01   | DUALS SECONDARY REVIEW: HS                               | 01 392,842<br>02 384,681<br>03 417,828 |
|                    | COMPUTER-BASED GUIDELINE ACTIVATION IN PRIMARY CARE      |  |
| 1 U01 LM05863-01   | DUALS SECONDARY REVIEW: HS                               | 01 328,077<br>02 309,784<br>03 313,815 |
|                    | PROVIDER USE OF AN AMBULATORY ELECTRONIC MED RECORD      |  |
| 1 U01 LM05864-01   | DUALS SECONDARY REVIEW: HS                               | 01 113,026<br>02 112,113<br>03 115,654 |
|                    | COMPUTER ENCODING OF CLINICAL NARRATIVE INTO SNOMED II   |  |
| 1 U01 LM05870-01   | DUALS SECONDARY REVIEW: HS                               | 01 359,101<br>02 328,839<br>03 356,053 |
|                    | A PUBLIC-DOMAIN ELECTRONIC PATIENT RECORD SYSTEM         |  |
| 1 U01 LM05871-01   | DUALS SECONDARY REVIEW: HS                               | 01 302,812<br>02 327,640<br>03 347,299 |
|                    | A PROBLEM ORIENTED ELECTRONIC MEDICAL RECORD             |  |
| 1 U01 LM05873-01   | DUALS SECONDARY REVIEW: HS                               | 01 274,909<br>02 272,513<br>03 264,184 |
|                    | TAGGING: A NEW PARADIGM FOR ELECTRONIC MEDICAL RECORDS   |  |
| 1 U01 LM05875-01   | DUALS SECONDARY REVIEW: HS                               | 01 291,992<br>02 299,239<br>03 310,987 |
|                    | INTELLIGENT INTERFACE TO AN ELECTRONIC MEDICAL RECORD    |  |

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|--------------------|--|--|
| 1 U01 LM05877-01   | DUALS SECONDARY REVIEW: HS<br>MULTIPLATFORM INTERNET ACCESS TO MULTIMEDIA EMRS         | 01 414,417<br>02 412,314<br>03 428,493 |
| 1 U01 LM05879-01   | DUALS SECONDARY REVIEW: HS<br>VOCABULARY AND TEXT DATA EXTRACTION FROM THE EMR         | 01 295,400<br>02 245,128<br>03 254,933 |
| 1 U01 LM05880-01   | DUALS SECONDARY REVIEW: HS<br>IMPLEMENTATION OF A STATEWIDE EMR DATA REPOSITORY        | 01 447,725<br>02 351,713<br>03 351,713 |
| 1 U01 LM05884-01   | DUALS SECONDARY REVIEW: HS<br>ELECTRONIC RECORD RETRIEVAL FOR HEALTH SERVICES RESEARCH | 01 261,179<br>02 308,637<br>03 315,015 |
| 1 U01 LM05886-01   | DUALS SECONDARY REVIEW: HS<br>HIV CODES, CLINICAL TERMS & MANAGEMENT GUIDELINES        | 01 335,504<br>02 221,549<br>03 210,850 |
| 1 U01 LM05887-01   | DUALS SECONDARY REVIEW: HS<br>LINKING COMPUTERIZED PATIENT DATABASE SYSTEMS            | 01 439,476<br>02 507,661<br>03 396,855 |
| 1 U01 LM05892-01   | DUALS SECONDARY REVIEW: HS<br>A BOTTOM-UP APPROACH TO ELECTRONIC MEDICAL RECORD DESIGN | 01 311,699<br>02 294,966<br>03 296,215 |
| 1 U01 LM05894-01   | DUALS SECONDARY REVIEW: HS<br>COST/BENEFIT OF COMPUTERIZED DECISION SUPPORT SYSTEMS    | 01 292,530<br>02 271,355<br>03 306,386 |

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|--------------------|--|------------------------|
| 1 U01 LM05896-01   | DUALS SECONDARY REVIEW: HS                               | 01 249,867             |
|                    |  | 02 222,093             |
|                    | INTEGRATED CLINICAL VOCABULARY:ELECTRONIC PATIENT RECORD | 03 169,256             |