

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

A G E N D A

99th Meeting of the

BOARD OF REGENTS

9:00 a.m., January 30-31, 1992

Board Room
Mezzanine of
National Library of Medicine

MEETING OPEN: 9:00 a.m. to 4:45 p.m. on January 30, and from 9:00 a.m. to 12:15 noon on January 31.

MEETING CLOSED: 4:45 to 5:15 p.m. on January 30 for the review of grant applications.

1. CALL TO ORDER AND INTRODUCTORY REMARKS Dr. Ruth M. Davis
2. REMARKS FROM THE SURGEON GENERAL'S OFFICE Dr. Rice C. Leach
3. CONSIDERATION OF OCTOBER MINUTES TAB I Dr. Ruth M. Davis
(Agenda Book)
4. FUTURE MEETING DATES Dr. Ruth M. Davis
Spring Meeting: May 28-29, 1992 (Th-F) CONFIRMED
Fall Meeting: October 1-2, 1992 (Th-F) CONFIRMED
Winter Meeting: January 28-29, 1993 (Th-F) PROPOSED
5. REMARKS BY THE DIRECTOR, NLM TAB II Dr. Donald A. B. Lindberg
Discussion Board Members
- COFFEE BREAK
6. NIH DIRECTOR'S ADVISORY COMMITTEE TAB IV Dr. H. Kenneth Walker
MEETING Board Members
Discussion

1/23/92

7. REMARKS BY THE DIRECTOR, NIH Dr. Bernadine Healy
8. NIH STRATEGIC PLAN TAB III Dr. Donald A. B. Lindberg
Dr. H. Kenneth Walker
Discussion Board Members
- LUNCHEON CATERED IN CONFERENCE ROOM "B"
9. LONG-RANGE TOXICOLOGY PLANNING PANEL TAB V Dr. Elliot Siegel
INTERIM REPORT Dr. Henry Kissman
Discussion Ms. Beverly E. Allen
Other Board Members
10. OUTREACH ACTIVITIES TAB VI Dr. Charles A. Walker
- a. Tutwiler, Mississippi--Dr. Brooks Tab A
Tape
- b. Health Sciences Information Tab B
Projects in Wyoming
- Discussion Ms. Janice Gahagan
Ms. Rachael K. Anderson
Dr. Lois E. DeBakey
Other Board Members
11. REPORT ON RECENT INSTITUTE OF MEDICINE TAB VII
STUDIES
- a. Automated Patient Record Tab A Dr. Don E. Detmer
b. Health Services Research Tab B Mr. Lawrence C. Morris
- Discussion Dr. Lawrence H. Cohn
Dr. Kathleen A. McCormick
Dr. H. Kenneth Walker
Other Board Members
- COFFEE BREAK
12. APPOINTMENT OF NOMINATING COMMITTEE FOR CHAIR Dr. Ruth M. Davis

13. EXTRAMURAL PROGRAMS TAB VIII Dr. Milton Corn
- a. Budget Tab A
 - b. Information Access Grant Announcement Tab B
 - c. Fellowship in Applied Informatics Announcement Tab C
 - d. IAIMS: A Personal Overview Tab D Dr. John F. Sherman
 - e. Review of Board Operating Procedures (Board action necessary.) Tab E
- Discussion Ms. Rachael K. Anderson
EP Subcommittee Members
Other Board Members

MEETING CLOSED FOR THE REVIEW OF GRANT APPLICATIONS, JANUARY 30, 4:45 P.M.

14. REVIEW OF GRANT APPLICATIONS Dr. Roger W. Dahlen
- (Conflict-of-interest instructions in front of workbook for your information and review.)
- RESEARCH TAB I
- A. Medical Informatics Tab A
 - B. Biotechnology Tab B
 - C. Library and Information Science Tab C
- RESEARCH RESOURCE APPLICATION TAB II
- RESOURCE TAB III
- A. Information Systems Tab A
 - B. Information Access Tab B
 - C. IAIMS Tab C
- PUBLICATION GRANT APPLICATIONS TAB IV

SUMMARY LIST OF APPLICATIONS
NOT RECOMMENDED FOR FURTHER
CONSIDERATION

TAB V

INTERIM ACTIONS

TAB VI

R E C E S S * * * * *

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

SPEAKER: Dr. Alvy Ray Smith
President Altamira Software Company and
Member, Board of Regents, NLM

TITLE: "Understanding Media: Spatial Editing
or
How to Lie With Computers."

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

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15. NCBI DISCOVERIES AND DEVELOPMENTS OF TAB IX Dr. David J. Lipman
DATA DESCRIPTION STANDARDS
Discussion Board Members

16. BIENNIAL REPORT OF THE BOARD OF TAB X Dr. Elliot Siegel
REGENTS (Board action necessary.) Dr. Ruth M. Davis
Discussion Board Members

COFFEE BREAK

- | | | | |
|-----|---|-----------------|--|
| 17. | TOXNET SYSTEM | <u>TAB XI</u> | Mr. Bruno M. Vasta |
| | Discussion | | Dr. Robert E. Kahn
Other Board Members |
| 18. | NHANES X-RAY WORKSTATION | <u>TAB XII</u> | Dr. Daniel R. Masys
Dr. George R. Thoma |
| | Discussion | | Dr. Robert E. Kahn
Other Board Members |
| 19. | SPECIAL ACQUISITIONS IN THE HISTORY OF MEDICINE | <u>TAB XIII</u> | Dr. John Parascandola |
| | Discussion | | Board Members |
| 20. | ADJOURNMENT | | Dr. Ruth M. Davis |

DEPARTMENT OF HEALTH AND HUMAN SERVICES

**NATIONAL INSTITUTES OF HEALTH
NATIONAL LIBRARY OF MEDICINE**

**BOARD OF REGENTS
MINUTES OF THE 99TH MEETING
January 30-31, 1992**

**BOARD ROOM
NATIONAL LIBRARY OF MEDICINE
BETHESDA, MARYLAND**

**DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE**

THE BOARD OF REGENTS OF THE NATIONAL LIBRARY OF MEDICINE

**Minutes of Meeting 1/2/
January 30-31, 1992**

The Board of Regents of the National Library of Medicine was convened for its ninety-ninth meeting at 9:00 a.m. on Thursday, January 30, 1992, in the Board Room of the National Library of Medicine, Bethesda, Maryland. Dr. Ruth M. Davis, President of The Pymatuning Group, chaired the meeting. In accordance with P.L. 92-463 and the Determination of the Director, NIH, as announced in the Federal Register on January 9, 1992, the meeting was open to the public from 9:00 a.m. to 4:45 p.m. on January 30 and from 9:00 to 12:30 a.m. on January 31. The meeting was closed from 4:45 to 5:15 p.m. on January 30 for the review, discussion, and evaluation of grant applications. A Board roster is enclosed under Attachment A.

Board members present were:

Dr. Ruth M. Davis, Chair	Dr. Robert E. Kahn
Ms. Beverly E. Allen	Mr. Joseph H. Howard
Ms. Rachael K. Anderson	Dr. Alvy Ray Smith
Dr. Lawrence H. Cohn (1/30)	Dr. Jeanne Spurlock
Dr. Lawrence J. DeNardis	Dr. H. Kenneth Walker
	Dr. James A. Zimble

Alternates to ex officio members present were:

Ms. Wendy Carter, representing Dr. James W. Holsinger, Jr.
Col. Howard E. Fauver, representing Lt. Gen. Frank F. Ledford, Jr.
Capt. David G. Kemp, representing Vice Adm. Donald F. Hagen.
Capt. Kathleen A. McCormick, representing Dr. Antonia C. Novello.
Col. Jacqueline Morgan, representing Lt. Gen. Alexander M. Sloan.
Dr. Richard E. Rowberg, representing Dr. James H. Billington.

Unable to attend:

Dr. Ronald E. Cape
Dr. Mary E. Clutter

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

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

National Library of Medicine staff members attending this meeting included:

Dr. Donald A. B. Lindberg, Director
Mr. Kent A. Smith, Deputy Director
Dr. Harold M. Schoolman, Deputy Director for Research and Education
Mr. Kenneth Carney, Executive Officer, OD
Ms. Lois Ann Colaianni, Associate Director, LO
Dr. Milton Corn, Acting Associate Director, EP
Dr. Michael Ackerman, Educational Technology Branch, LHCBC
Dr. George J. Cosmides, Deputy Associate Director, SIS
Dr. Roger W. Dahlen, Chief, Biomedical Information Support Branch, EP
Ms. Becky Lyon-Hartmann, Head, National Network Office, LO
Mr. Earl Henderson, Deputy Director, LHCBC
Dr. Richard K. C. Hsieh, Director for International Programs
Ms. Betsy Humphreys, Deputy Associate Director, LO
Mr. Charles R. Kalina, Special Projects Officer, OD
Dr. Henry M. Kissman, Associate Director, SIS
Dr. David J. Lipman, Director, National Center for Biotechnology Information
Dr. Daniel R. Masys, Director, Lister Hill National Center for Biomedical Communications
Dr. Jean-Michel Claverie, Visiting Scientist, NCBI
Mr. Robert B. Mehnert, Chief, Office of Inquiries and Publications Management, OD
Mr. David Nash, EEO Officer
Dr. James M. Ostell, Chief, Information Engineering Branch, NCBI
Dr. Elliot R. Siegel, Assistant Director for Planning and Evaluation, OD
Dr. Sidney Siegel, Chief, Office of Hazardous Substances Information, SIS
Dr. Melvin Spann, Biomedical Information Services Branch, SIS
Dr. George R. Thoma, Chief, Communications Engineering Branch, LHCBC
Mr. Bruno M. Vasta, Chief, Biomedical Files Implementation Branch, SIS
Dr. Charles A. Walker, Director, Office of Outreach Development, OD
Mr. Richard T. West, Chief, Office of Program Planning and Evaluation, EP

Others present included:

Col. John Silva, Department of Surgery, USUHS
Dr. Rice C. Leach, Chief of Staff to the Surgeon General, PHS
Dr. Lois E. DeBakey, Professor of Scientific Communications, Baylor College
of Medicine, Consultant to Board of Regents
Dr. Claudia A. Blair, Director, Institutional Affairs, Extramural Programs, NIH
Dr. Don E. Detmer, Vice President for Health Sciences, University of Virginia
Dr. Katherine Flegal, Chief, Medical Statistics Branch, National Center for Health Statistics,
Center for Disease Control

(Continued on Page 3)

Others present (continued)

Ms. Janice Gahagan, Coordinator, Health Sciences Information Network,
University of Wyoming
Ms. Jo Harris-Wehling, Project Officer, Institute of Medicine
Ms. Shirley Haley, Managing Editor, The Washington FAX
Ms. Kristin Kiser, Legislative Analyst, Office of the Director, NIH
Ms. Reva C. Lawrence, Epidemiology/Data Systems Program Officer, Office of
Prevention, Epidemiology and Clinical Applications, NIAMS, NIH
Mr. Bradie Metheny, Publisher, The Washington FAX
Dr. Lawrence Morris, Consultant, Wilmette, IL
Dr. Stanley Pillemer, Medical Officer, Office of Prevention, Epidemiology and
Clinical Applications, NIAMS, NIH
Dr. Charles Pletzke, Director, Learning Resource Center, USUHS
Dr. John F. Sherman, Consultant, Rockville, MD
Ms. Ileen Stewart, Scientific Review Administrator, DRG
Ms. Margaret VanAmringe, Director for the Center of Research Dissemination
and Liaison, HHS
Ms. Peggy A. Whittington, Committee Management Officer, NCRR

I. OPENING REMARKS

Dr. Ruth M. Davis, Chair, welcomed the Regents and guests to the ninety-ninth meeting of the Board of Regents of the National Library of Medicine. She introduced guests Dr. Lois E. DeBakey and Ms. Janice Gahagan. Dr. Davis thanked Col. Howard E. Fauver, MC, USA, for his service to the Board; he is being transferred from Chief of the Graduate Medical Education Branch to the Walter Reed Army Institute. She also noted the letter from Mrs. Garland Davies thanking the Regents for their expression of sympathy on the untimely death of her husband, Dr. Nicholas Davies, former Regent and Chairman.

II. REMARKS FROM THE SURGEON GENERAL'S OFFICE

Dr. Rice C. Leach, representing the Surgeon General, reported that an interdepartmental conference organized by the Surgeon General on "Healthy Children Ready to Learn" starts in a week. The purpose is to brainstorm with parents and others to get healthy children ready to enter school by the year 2000. Dr. Leach announced that a new chief nurse, Julia Plotnick, and a new chief pharmacist, Richard Bertin, have been appointed by the PHS Commissioner Corps. Dr. Leach reported on a recent conference about sharing facilities and services among the PHS Indian Health Service, the VA, and the Defense Department. He also noted the possible need for the PHS to provide medical services for Haitian refugees who come to the U.S. In response to a question from the Board, Dr. Leach said that a few of the Cuban refugees of some years ago are under PHS care in federal prisons. Dr. Zimble commented

that the Uniformed Services University of the Health Sciences (USUHS) stands ready to cooperate with PHS agencies to reach underserved communities; USUHS students are mature and committed to serving Americans in need. Dr. Spurlock urged that the Healthy Children Conference described by Dr. Leach also consider the plight of homeless children.

III. CONSIDERATION OF MINUTES OF PREVIOUS MEETING

The Regents approved without change the minutes of the October 23-24, 1991, meeting.

IV. DATES OF FUTURE MEETINGS

The Board will meet next on May 28-29, 1992. The Fall meeting, on October 1-2, 1992, was confirmed. The meeting next Winter was set for January 28-29, 1993.

V. REPORT OF THE NLM DIRECTOR

Dr. Donald A. B. Lindberg reported that the NLM FY 1992 budget has been set at \$99,323,000. This is a reduction of \$1,231,000 from the President's budget. Travel is being especially severely restricted throughout the Department. Dr. Lindberg presented a chart that showed how the FY 1992 appropriation is distributed within NLM. The National Center for Biotechnology Information's activities (excluding those related to the High Performance Computing and Communications initiative) and the programs funded under the Medical Library Assistance Act are being held to the FY 1991 funding level. Neither the NCBI nor the MLAA has yet been reauthorized by the Congress. Dr. Lindberg welcomed to the Library two new scientists working in the NCBI: Dr. Herve Recipon of France and Dr. Eugene V. Koonin of the former USSR. In the area of legislation, the Director presented a chart that tracked nine Bills of special interest to the Library. They range from Bills that would reauthorize the National Center for Biotechnology Information and the Medical Library Assistance Act to one that would authorize the High Performance Computing and Communications Initiative, to those that deal with various other aspects of communications and information resource management that would affect the NLM. One of the latter deals with copyright as it might apply to computer software developed jointly by the government and private industry. Dr. Kahn commented that the difference between patent protection and copyright protection for software is profound. Copyright is a much more productive and appropriate vehicle for protecting software, he said.

Dr. Lindberg mentioned briefly the Regional Medical Programs Conference sponsored by NLM in December. Information about the conference and about the video interviews conducted with the important figures behind the RMP movement will be provided to the Board. As a followup to the report on the Unified Medical Language System presented at the Board's last meeting, the Director said that NLM is planning to enter into several contracts (up to \$25,000 each) to test the UMLS Knowledge Sources. Dr. Lindberg remains enthusiastic about the High Performance Computing and Communications (HPCC) initiative. NLM's services are now available experimentally over NSF's existing Internet, a precursor

to the National Research and Education Network (NREN) called for in the HPCC initiative. The Library, wanting to be sure that Internet access to NLM databases is well established, is being low-key in its approach to publicity. Dr. Lindberg said that he has been asked by the NIH Director to represent the Department on the Office of Science and Technology Policy's "PMES" (Physical, Mathematical, and Engineering Sciences) Committee; the HPCC working group (which reports to PMES) is now represented by the Lister Hill Center Director, Dr. Daniel Masys. The NLM Director noted that NLM has signed a one-year experimental agreement with the American College of Physicians. Under the agreement, members of that organization can receive the Grateful Med software and virtually unlimited access for one year to NLM's databases for a flat fee of \$200. This is the latest of a number of such flat-fee arrangements and the first with a professional association. Finally, Dr. Lindberg noted that on October 25, 1991, NLM sponsored a hearing at the Library on the Implementation of Permanent Paper Use. The hearing was to celebrate the progress that has been made in persuading medical publishers to print their journals on permanent (acid-free) paper. Joining the 100 guests in the very successful meeting were Congressmen George E. Brown, Jr., and Steny H. Hoyer. They also heard the three-minute national radio broadcast by Paul Harvey on October 19, congratulating the Library and Dr. Lois E. DeBakey on their success in this area.

VI. AWARD

Board member Dr. James A. Zimble, President of the Uniformed Services University of the Health Sciences, presented to Dr. Lindberg the Defense Department's Outstanding Service Medal for his work on the Presidential Search Committee of the University.

VII. NIH DIRECTOR'S ADVISORY COMMITTEE MEETING

Board member Dr. H. Kenneth Walker said that the December NIH Director's Advisory Committee focused on the matter of indirect costs and on a series of items concerning the NIH strategic plan. The average indirect cost rate paid by NIH is currently about 54 percent. A survey showed that 27 percent goes to Administration, 24 percent to facilities, 2.4 percent to libraries, and to student services 0.2 percent. The guiding philosophy has changed over the years. Originally (1946), it was felt that if a university could not absorb the overhead costs, it should not apply for grants. Indirect costs were introduced at a low level in 1948 and grew (a cap of 15 percent in 1958, 20 percent in 1963). The cap was removed in 1966, when NIH paid a total of \$51.2 million in indirect costs. In 1990 the figure was \$1.6 billion. Indirect costs continue to rise sharply, due mostly to including (in 1982) interest on buildings and facilities in their calculation. Because of the increase, it is estimated that 65 fewer grants can be funded every year; by 2000 there will be 550 fewer grants than now. The current range in indirect costs is from 31 to 77 percent. Three characteristics account for most of the variance: geography, whether the institution is public or private, and the amount of NIH-funded research at the institution. Three proposed approaches have been put forward by NIH: (1) simplify the accounting system and standardize rates, (2) devise a formula rate system, and (3) modify the present system (a proposal that includes a library cap of 2.0

percent). The current average for libraries is 2.4 percent. It is unclear how the important question of indirect costs will be resolved. A letter from Dr. Walker to the NIH Director commenting on the indirect cost issue is included in the Board's book of meeting materials. After a general discussion of the issue by the Board, Dr. Davis asked the Regents to review Dr. Walker's letter and make comments and suggestions that could be used to establish a formal Board position.

VIII. NIH STRATEGIC PLAN

Dr. Lindberg recounted the steps taken by the NIH to construct a strategic long-range plan. Rather than establish committees of experts (federal and nonfederal) to draft a plan, NIH elected to draft a plan using its own staff and then seek outside opinion. The former method, which NLM used in its long-range planning effort, is "user-dominated." By using its own staff to draft a plan, NIH has created anxiety in the scientific community, Dr. Lindberg said. This was evident at the first two open meetings (in Texas and Connecticut) held to discuss a 17-page "framework" for the plan. Several more open meetings in other parts of the country are scheduled over the next few weeks.

Following Dr. Lindberg's introduction of the topic, Dr. Walker reported on discussions about the plan at the November 21, 1991, NIH Director's Advisory Committee meeting. He said that the NLM has two opportunities: (1) to help the NIH Director formulate the plan and gain its acceptance, and (2) to ensure that the needs of the NLM are addressed in the plan. The "framework" mentioned by Dr. Lindberg contains five categories: critical technologies, research capacity, intellectual capital, stewardship of government resources, and the public trust. Dr. Walker suggested the Board might wish to consider an expression of support for the plan.

During the ensuing discussion it was suggested that a sixth category concerning the information infrastructure of biomedicine might be added to the long-range plan framework. It was also suggested that there might be a formal assessment of the total environment in which NIH exists and operates. There was discussion as to whether a sixth category should be created or whether the Library's concerns should be incorporated into the existing framework of five. Dr. Walker will synthesize the Board's discussion and present a revised statement for its later consideration.

IX. LONG-RANGE TOXICOLOGY PLANNING PANEL

Dr. Elliot Siegel, NLM Assistant Director for Planning and Evaluation, described the Library's most recent planning effort in the area of long-range planning in toxicology. A 40-member panel of advisors, co-chaired by Dr. Edward Brandt and Dr. David Oman, has met twice since the last Regents' meeting. At the first meeting, five working groups were established: (1) databases in other organizations, (2) international information resources and activities, (3) users and their needs, (4) issues in database building, and (5) information needs of emergency response activities.

Following Dr. Siegel's introduction of the topic, Dr. Henry Kissman, NLM Associate Director for Specialized Information Services, reported on the discussions at the second meeting of the panel, held on January 9-10, 1992. Although initial reports from the five working groups are not due until January 31, Dr. Kissman identified several cross-cutting issues and preliminary conclusions based on the first two meetings. Among these are the need for an NLM service that will help users identify and use non-NLM databases (including foreign databases), the question of how certain NLM databases are made available to lay as well as professional users, how to develop closer ties to users of NLM's toxicology information services, how to apply quality control measures to NLM toxicology databases, the need to develop more numeric and factual databases that are not based on the literature, how to assure NLM leadership in identifying emerging trends, and how to ensure close collaboration between NLM and various international database efforts. Dr. Kissman said that NLM staff is working with the co-chairmen to develop a draft report to be circulated to the committee to consider before its final meeting on March 24-25. A final report should be ready for the Board of Regents to consider at its next meeting in May 1992.

After Dr. Kissman's report, Regent Beverly Allen made several observations about the January 9-10 meeting which she attended on behalf of the Board. She noted that there was a good match between the major domains laid out in the original NLM Long-Range Plan and the areas identified by the toxicology planning panel. She said she was optimistic that the guidelines the panel would provide to NLM staff will be of great help in mapping future activities in this area.

X. OUTREACH ACTIVITIES

Dr. Charles Walker, Director, NLM Office of Outreach Development, described his recent work in promoting NLM's outreach in the Lower Mississippi Delta. This area became the target of special Congressional concern several years ago when it was realized that the Lower Mississippi Delta had health and other problems on a scale unknown elsewhere in the U.S. Dr. Walker announced a planned conference in the Spring to address the problems of the Delta. The conference will involve NLM, other network libraries, local health-care providers, and local political figures. Using slides, he provided to the Board statistics about the inadequate number of physicians, nurses, and other health-care workers serving the Mississippi Delta area. Statistics on infant mortality were similarly dismal. The NLM has one special outreach project in the area--that in Tutwiler, Mississippi. Dr. Walker showed a videotape describing the project to assist Dr. Anne Brooks, a nun whose clinic NLM has equipped with Grateful Med access to MEDLINE and a special arrangement to provide copies of articles she needs. Dr. Walker, a former dean of a school of pharmacy and chancellor of a university in the Delta area, ended his presentation by saying that the NLM should collaborate more with individual health professions--such as pharmacists. He introduced the next speaker, Ms. Janice Gahagan, by noting that she is associated with the School of Pharmacy at the University of Wyoming (Laramie). Her outreach activities are being funded by the NLM.

Ms. Gahagan, whose title is Health Sciences Information Network Coordinator at the

University of Wyoming, described outreach activities in that state. Her institution received one of the competitive purchase orders issued by NLM for introducing Grateful Med into underserved areas. There were 11 sites chosen for the Grateful Med training, none with a medical library, librarian, or computer searching capability. She read several anecdotes from the reports from the remote training sites. All sites now have Grateful Med, and the Loansome Doc (document delivery) capability is being implemented. There were 42 trainees in all--nurses, administrators, physicians, medical records specialists, and several other categories. Ms. Gahagan described some of the budgetary, staff, and weather obstacles the program faced and is overcoming. When the period of training under the contract is over, Ms. Gahagan said there are plans to continue outreach with retail pharmacists, nurse practitioners, medical technologists, and other allied health care workers.

Regent Rachael Anderson commented that the problems faced by Ms. Gahagan are similar to those faced by the National Network of Libraries of Medicine program--constant staff turnover, for example. More availability of self-learning materials might be a help in such training environments. Dr. Lois DeBakey reminded the Board that the Planning Panel report on outreach called for NLM to revitalize its relationship with network libraries so that those in rural and underserved areas could be better served. The newly named National Network of Libraries of Medicine, she said, acts as a field force for the NLM, helps with marketing the Library's products, and provides feedback from users. NLM is to be commended for providing assistance to Dr. Anne Brooks. The Library should learn much about rural information needs from working with her. Dr. DeBakey said that an article in the JAMA about the NLM's services, including Grateful Med, would be very helpful.

XI. RECENT INSTITUTE OF MEDICINE STUDIES

Dr. Don E. Detmer, Vice President for Health Sciences, University of Virginia (and former Regent), summarized the recent study of the computer-based patient record (CPR) conducted under the auspices of the Institute of Medicine. The study was unusual in that it was generated by the Institute itself, not conducted at the request of another organization. The study was supported by a number of public and private organizations, and about 150 experts were involved. The charge to the committee was to examine the current state of medical record systems, to identify impediments to improving them and ways to overcome the impediments, to develop a research agenda, and to recommend policies and strategies for implementing a nationwide system of computer-based patient records. The committee established three subgroups: users and uses, technology, and strategy and implementation. Dr. Detmer summarized the aspects of the computer-based patient record covered by each subgroup. The key recommendation of the committee was that health-care professionals and organizations should adopt the CPR as the standard for all records related to patient care. To achieve this, the committee also recommended the establishment of a public/private CPRI to coordinate related efforts to promote expanded public and private support for R&D and demonstration projects on the CPR; to promote the development of uniform national standards for data and security; and to encourage model legislation and regulations (Federal and state). Costs of the CPR system should be shared by those who benefit from it. Widespread professional support from health-care educational institutions and organizations

like the NLM will be necessary to make the CPR a reality. Two weeks ago, he said, the new Computer-based Patient Record Institute was incorporated. Following Dr. Detmer's presentation, there was a discussion of costs associated with the CPR and whether the Institute should be involved in standardizing formats. It was suggested that it might be better for the standards to arise from the profession itself.

A second study on health services research was described by Mr. Lawrence C. Morris, Chairman of the IOM Committee to Advise the National Library of Medicine on Information Center Services in Health Services Research. The study was in response to a specific Congressional mandate that the Agency for Health Care Policy and Research fund an IOM study to advise NLM on how to improve its information services in health policy and research. Mr. Morris, who is a consultant in health care financing, said the Committee consisted of nine experts who met twice during the 12-month study. Among the user groups most concerned with health services research (and represented at the meetings) are the American College of Physicians, the Joint Commission on the Accreditation of Health Care Organizations, the Health Insurance Association of America, the Health Industry Manufacturers Association, and the Maryland Hospital Association. After analyzing what users said were the kind of inquiries they needed addressed, the Committee made a series of five recommendations to NLM. These include improving access to published materials in health services research, developing automated access to other relevant information, including research in progress and datasets useful to health service researchers, improving the ability of librarians to provide reference service in the field, expanding the Unified Medical Language System to provide more complete coverage of terminology important to the field, and promoting the use of NLM information services among the producers and users of health services research information. The Committee estimated total start-up costs to be \$2.9 million and continuing costs of about \$1.7 million per year.

Responding to the presentations, Dr. Lawrence E. Cohn noted several factors that will affect the acceptance of the computer-based patient record, including cost reimbursement and privacy issues. The CPR will have to become part of the medical school curriculum if it is eventually to be universally accepted. Dr. Kathleen McCormick commented that the IOM study on health services research covered all the right topics. She suggested, however, that actually identifying "outcomes" literature is quite difficult; one has to look at a large number of articles to winnow down to those that are pertinent specifically to health services outcomes research. When the IOM health services report refers to "guidelines," she said, it means a systematic review of the literature by the AHCPR, in effect, "expert opinion packaged for use at the bedside." Besides the AHCPR, the medical specialty societies prepare guidelines. There are some 1,000 in existence. Valuable lessons learned in the last year through NLM/AHCPR collaboration are the immensity of the task of reviewing the literature, its components, the role of the regional librarians in identifying it, the outreach potential of the guidelines for practicing physicians (especially those without experts to consult), and the value of establishing centers in the U.S. (e.g., professional associations) to help synthesize the literature. She discussed the problems of format, quality control, and continuing updates for the guidelines. We need new models of delivering the guidelines to health professional users--to physicians, pharmacists, nurses, and others. The challenge for the Library in this area is enormous. Finally, Dr. H. Kenneth Walker commented that work began at least 12 years ago

on the CPR at his institution. The biggest problems are with the deans (who don't understand the crucial nature of patient information), hospital administrators, and those who work with hospital information systems. He applauded the IOM work and hopes that the study and recommendations on CPR will have great influence in the coming years.

XII. COMMITTEE TO NOMINATE BOARD CHAIR

Dr. Davis appointed Dr. Zimble (chair), Ms. Carter, and Mr. Howard to serve as a committee to nominate a Board Chair for 1992-1993.

XIII. REPORT FROM EXTRAMURAL PROGRAMS

Dr. Milton Corn, Acting Associate Director for Extramural Programs, stated that the FY 1992 Extramural Programs' budget of competing and noncompeting grants is \$26.06 million, of which only \$4.4 million are available for competing awards. Allocations to individual programs are as follows: Integrated Information Management Systems (IAIMS) \$657,000, Training \$70,000 (\$3.12 million have already been committed), Resources for libraries, particularly important for NLM's outreach initiative, \$394,000. Under the PHS 301 authority, competing grants amount to \$2.1 million for Medical Informatics projects and almost \$1.0 for Biotechnology. The Small Business Incentive Research Program will have \$72,000 available for the fiscal year, only enough for one planning study.

As a final item, Dr. Corn drew attention to two previously discussed program announcements--the Revised Resource Grant and the Fellowship in Applied Informatics. Both were included in the agenda book.

Dr. Corn introduced Dr. John F. Sherman who had been invited to speak about his experience with the IAIMS Program. Dr. Sherman has been associated with the program from its inception, through the planning stages, and as a member of the Biomedical Library Review Committee, as well as Chairman of ad hoc reviews and site visits to IAIMS applicants' institutions.

Dr. Sherman gave a background history of the program and described the lessons learned in the years that followed NLM's initial program announcement in mid-1984. The announcement was prompted by the 1982 report of the Association of American Medical Colleges (AAMC), one originating from a series of studies that NLM had asked the AAMC to prepare, concerning the role of medical libraries in medical education, in the delivery of health services, and in biomedical research. The report emphasized (1) the role of the library as a key instrument in the information resource development and in the sharing and dissemination of information, and (2) the development of new approaches for organizing and sharing that information with the various parts of the entire institution.

Accordingly, NLM proposed "to assist institutions in linking the library systems and the multitude of additional information systems that underpin the complex modern medical

center into an integrated computer-based network." Three sequential phases were proposed for the ultimate achievement of the objective: planning, model development, and implementation. This sequence has been maintained over the years with one major modification; i.e., experience suggested that the timing of the three phases was insufficient and, therefore, most of phases were lengthened by 50 to 100 percent. Dr. Sherman noted that the review process has been a very fair and thorough one. The primary problem has been the availability of Federal funds, so that not all approved applications have been funded. The concept of the IAIMS Program is basically sound. Unfortunately, Dr. Sherman declared, in a number of institutions at various levels, people have failed to grasp the entire meaning and, therefore, the potential of the concept. At the same time, those programs that have progressed through PHASE I have shown that even relatively small awards can provide important leverage. They have brought about attitudinal changes in staff, faculty and administration and have garnered additional funding from other sources, s.a., private industry and state and local governments. For the Federal Government, and particularly for NLM, the return on this investment has been substantial in most institutions, Dr. Sherman stated. He also noted that there is no single IAIMS model distinguishable, although the concept suggests otherwise. In actuality, every institution is sufficiently different in its characteristics, objectives and environment, and its IAIMS would not lend itself to be used at other institutions of the same general type. Dr. Sherman emphasized, however, that this is not to say that there is no transportability. In this context, attitudinal changes are sometimes more important than taking advantage of high technology in information management and computer science. Indeed, without substantial changes in the attitudes within most institutions, from the top administrative staff to those at the bench or at the bedside, an IAIMS is not going to succeed in realizing its full potential. It is important that all staff levels are involved from the very start. For those institutions who have crossed that hurdle, enormous rewards are realized. In conclusion, Dr. Sherman emphasized, that unless some way is found to adapt a concept of this type in many situations, the health community and the institutions will be the losers. Ms. Anderson commented by saying that judging from her own experience, the program has been very successful. It brings an institution together, even if all the funding has not come forth from NLM. It has a way of pulling people together from different parts of the institution and start working together. She agreed with Dr. Sherman that the concept in the beginning was hard to grasp. At Columbia much time was spent on coming to terms with the concept. Now, a few years later, the value of integrating access to different kinds of information seems obvious. Dr. McCormick raised the question of turning this into Centers of Excellence, as a way of taking it a step further. NLM has tried to do just that, Dr. Lindberg said, but Congress was not interested, and virtually no one stepped forward from the academic side in support of this idea. Dr. Sherman felt that a Center of Excellence is not necessarily a paradigm of a successful IAIMS. Dr. Corn pointed to a not anticipated aspect, recently realized--a conversion of interest of Training sites with already established IAIMS institutions.

Board Operating Procedures

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.

**MEETING CLOSED FOR THE REVIEW OF GRANT APPLICATIONS
JANUARY 30, 4:45 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 applications workbook, and reminded them to sign, at the conclusion of the grant applications review, the statement noting that they had not participated in the discussion of any applications which presented a conflict of interest.

The Board reviewed 36 applications, requesting \$23,648,097 and recommended for further consideration 25 applications in the amount of \$12,701,487 for the total years requested. Eleven applications in the amount of \$8,864,065 were not recommended for further consideration. Grant applications recommended for further consideration by the Board are listed in the summary actions (Attachment C). Interim actions taken by the Board's Extramural Programs staff since the October meeting were considered by the Board's Extramural Programs Subcommittee and noted and concurred with by the Board of Regents.

MEETING OPEN--JANUARY 31--9:00 A.M. TO ADJOURNMENT

XV. NCBI DISCOVERIES AND DATA DESCRIPTION STANDARDS

Dr. David J. Lipman, Director of NLM's National Center for Biotechnology Information, introduced two senior members of the Center's staff to present their work to the Board. Dr. James Ostell, Chief of the NCBI Information Engineering Branch, said that much genetic information that is being stored electronically is not interconnected. The small individual research groups that build up databases in their specialty areas were narrowly focused. There are two major DNA sequence databases--European (EMBL) and American (GenBank). They represent the same sequence information, and a decade has been spent attempting, with partial success, to exchange information between them. Within the U.S., the GenBank and protein sequence (PIR) databases exchange virtually no information, he said. In practice, nonstandard ways of describing the same information is a tremendous barrier to moving among these data resources in molecular biology. Negotiations to move toward standardizing formats have been unsuccessful. Mr. Ostell said it is possible to write software that converts between the two forms. For example, if GenBank and PIR wanted to exchange journal data, each could write a converter to and from the other. It soon becomes much more complicated as conversion with other resources (e.g., MEDLINE) would require additional software. If NCBI were to seek a solution, it would be necessary to step back from the problem and consider how to develop a framework for interoperation within the "whole" domain, still allowing for individual differences in approaches and evolution. The commercial computer

community has considered such interoperability in the realm of data-sharing, and an ISO standard for data exchange (ASN.1) has been developed. Dr. Ostell briefly described how ASN.1 can be applied to biotechnology-related data and how software developers can now write application software that is independent of the source of the data and independent of the machines on which it is implemented. He showed how a number of widely diverse biotechnology-related database compilers are using the new ASN.1 standard in their products. Linkages are now being forged across these disparate domains (NCBI's Entrez system, demonstrated at an earlier Board meeting is the first important example of this).

Following the presentation, there was a discussion about the NCBI's role. Dr. Ostell said that this takes two forms--(1) a lead role in building tools for use by others, and (2) collecting and integrating the data and information. Dr. Lipman commented that an important NCBI role will be to maintain the specifications; this will become more difficult as more organizations build tools and products based on NLM's documentation. Dr. Robert Kahn said he thought the NCBI approach was a correct one. He offered to work with the NCBI on another part of the problem, that of the linkage between the bibliographic side and the full-text retrieval side. Copyright is one major issue involved, and Dr. Kahn's group has been working on automated systems that arrange copyright clearance online.

The next presentation, about a recent NCBI discovery, was by Dr. Jean-Michel Claverie. As background, he recounted how in 1990 NCBI's Dr. Mark Boguski, working with scientists at other institutions, used an NCBI program called BLAST to search large sequence databases and help isolate the gene causing Von Recklinghausen's Neurofibromatosis ("Elephant Man's Disease"). Dr. Claverie and Dr. Christine Petit, a colleague at the Pasteur Institute in Paris, recently announced the identification of the gene responsible for the Kallmann Syndrome, a human genetic disease characterized by an altered sense of smell and infertility. Dr. Claverie described how scientists at the Pasteur Institute, who had sequenced a segment of 68,000 bases of human DNA known to contain the Kallmann genetic defect, transferred the bases to NCBI via Internet. Using NCBI-developed database searching techniques, Dr. Claverie was able to identify the important parts of the Kallmann gene, a region that constituted only 0.3 percent of the overall sequence. The work illustrates how advanced information technology is necessary to take full advantage of laboratory discoveries and, in fact, can be the source of further discoveries. NCBI is unique, he said, because of its combination of biological, computer, and database expertise. Pressure on the Center is increasing for more collaboration with other organizations. Our capacity to identify many more disease genes is limited only by the human resources available.

Dr. Lipman commented that there are two results of this kind of work. The first is a major increase in productivity, resulting from shortening the time needed to discover a gene and reducing the number of experiments that lead nowhere. The second is a tremendous increase in the number of searches being done--thousands a day at large institutions. NLM must be aware of possible exponential increases in the use of these services.

XVI. BIENNIAL REPORT OF THE BOARD OF REGENTS

Dr. Elliot Siegel described the required Biennial Report of the NIH Director to the Congress to which the advisory council of each NIH component makes a contribution. The intent is to communicate the accomplishments of the NIH component. The draft report, prepared by Dr. Siegel's office for the Board's consideration, focuses on areas concerning the NLM-Long Range Plan, such as biotechnology, digital imaging, and outreach. Dr. Siegel invited the Regents to provide him with comments and suggested changes. A revised report will be presented to the Board for its approval at the next Regents' meeting.

The Board approved in principle the three recommendations in the draft report recommending increased support for outreach, High Performance Computing and Communications, and biotechnology information databases and tools. Dr. Lindberg said that, although these certainly were high-priority areas, the Board might wish to add a recommendation that dealt with NLM's collection and basic bibliographic mission (i.e., the Library Operations' component of the Library) as the underpinning for all other services. After discussion, the Board agreed with a suggestion by Dr. Kahn that the report include a section on NLM's continuing leadership role in advancing and promoting library technology in general. Dr. Kahn also suggested that the report should be sure not to overemphasize the communications component of the High Performance Computing and Communications initiative at the expense of the computer and software component. Dr. Davis recommended that the Board of Regents portion of the NIH report be prepared as an offprint and widely distributed by the Regents. Dr. McCormick suggested that the Library's role in education and training needs to be highlighted in the report. Dr. Siegel will revise the draft report in light of the above comments and other suggestions that the Regents will send to him in the next week or so.

XVII. NIH STRATEGIC PLAN

Dr. Ruth Davis asked the Regents to get their comments to Dr. Elliot Siegel within the next week concerning Dr. Walker's report.

XVIII. TOXNET

Mr. Bruno M. Vasta, Chief of the Biomedical Files Implementation Branch (Specialized Information Services), described how the Library converted the existing TOXNET system to a distributed microprocessor-based network. Previously, TOXNET was run for the NLM on a pair of contractor-operated minicomputers with 6.5 gigabytes of online storage. Together with its proprietary software, this arrangement was relatively expensive, and the Library was advised to convert into a standard software/operating system. The Library took this advice and implemented initially a network cluster of 10 microcomputers. Mr. Vasta briefly recounted the history of TOXNET and its expansion from a single data bank up to its present 12 major data files, and how these files were converted into a standard MUMPS-based system in May 1991. The system has since evolved into its present configuration of sixteen 33-MHz 386 microprocessors with over 13 gigabytes of online disk storage and 224 user ports on four terminal servers. Access is provided through CompuSERVE, TYMNET,

SprITNet, and direct leased lines with the capability of linking to Internet by April 1992. The new microprocessor system has over 16 times the processing power and is four times faster than the previous minicomputer system. TOXNET usage was shown to have leveled off in the past year, but has started to pick up over the last two months. Competition from CD-ROM availability of various TOXNET databases and a slow economy were attributed as possible explanations of lower usage. Mr. Vasta showed graphs of TOXNET usage with finer demographics of user categories. Nearly 40% of all use comes from industrial companies, whereas in another category labeled "other" (13%), nearly half of the use is by individuals, and included significant usage by the media, press and public interest groups.

Mr. Vasta related that he and Dr. Dorothy Stroup attended an International Conference on reporting releases of toxic chemical cosponsored by the EPA and the OECD. Dialing directly from the conference site in Vienna, Austria, they were able to demonstrate TOXNET online to representatives from over 20 foreign countries. The various databases on TOXNET, especially HSDB and TRI, drew high praise from the attendees.

Dr. Robert Kahn said that he believed that it was a wise step for the NLM to convert into this networked microprocessor architecture which is becoming a very attractive alternative to large main-frame systems. He asked about database replication over the live and backup servers in the configuration, and was told by Mr. Vasta that all 12 databases and their respective indexes were spread across the mirrored servers and accessed by the users via instructions at the Local Area Transport Level. Dr. Kahn mentioned that a significant amount of research was being conducted on the development of inexpensive, arrayed, high-density storage systems, and that different interfaces, including parallel interfaces are being built to consolidate the ability to access distributed arrays. In dealing with growth, he mentioned that there is the issue of moving from session-based systems to transaction-based systems. Finally, Dr. Kahn said that it would be important for us to keep track of usage as TOXNET opens up to Internet traffic.

XIX. NHANES X-RAY WORKSTATION

Dr. Daniel R. Masys, Director of the Lister Hill Center, reported on a project previously brought to the Board's attention--that of the National Health and Nutrition Examination Surveys (NHANES). This is a collaborative project between the Lister Hill Center and two other PHS organizations, the National Center for Health Statistics (NCHS) and the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS). UCLA is also collaborating in the project. Following Dr. Masys' introduction, Dr. Katherine Flegal of NCHS presented a brief overview of how the data were collected. Data for the NCHS health and nutritional surveys are collected by direct physical examination and clinical laboratory testing. The surveys began in 1959 and were expanded to their present form in 1970. The third NHANES survey was begun in 1988 and will continue through 1994. It will include some 30,000 persons from age two on. Dr. Flegal briefly described how survey sites and individuals are chosen and how the data are collected through interviews and examinations. Among the examination procedures: drawn blood samples, lung function tests, retinal photographs, radiographs, bone densitometry, EKG's, blood pressure, etc. The general goals of the current NHANES study are to provide national population reference distributions, to determine national prevalence estimates of certain diseases and risk factors, to detect time

trends in health status, and to provide an understanding of the etiology and natural history of disease. The data are widely used by Federal and state agencies, universities, and private industry. After personal identifiers are removed, all data are released for public use. The second NHANES survey resulted in 17,500 radiographs; the third will produce 10,000. Although standardized evaluations of the radiographs have been prepared and released in the past, there has been no mechanism to release the radiographs themselves. That is one of the purposes of the present NCBH/NIAMS/NLM project to convert the images to digitized form.

Ms. Reva Lawrence of NIAMS described their concern that the original radiographs were beginning to deteriorate. It was difficult and costly to move the x-rays around the country for investigators to use. The project to digitize radiographic data is collaborative: NCHS collects the data through NHANES, NIAMS is funding the digitization, and the NLM (through the Lister Hill Center's Communications Engineering Branch) is developing the data workstations. The next step is to convene an advisory group to help develop protocols for standardizing the readings of the x-rays. Ms. Lawrence described a number of applications and how the digitized data would be useful in research and education.

Dr. George Thoma, Chief of LHC's Communications Engineering Branch, said that "DXPNET" is the name given to the workstation/network LHC is developing for NCHS to process the digitized NHANES data. LHC staff are developing software that will allow the integration of affordable off-the-shelf hardware components into a workstation for using the digitized radiographic images. Dr. Thoma showed a picture of the workstation that his staff has developed and that is now in use at NCHS, and he briefly described its hardware and software components. The tasks remaining, he said, are to create a workstation for radiologists to use in creating the standardized readings and to develop an electronic x-ray archive and a means to make the data accessible over the Internet. Dr. Thoma described some of the characteristics of each: for example, the workstation requires a high-quality display of 2048 x 2048 pixel resolution and the image archive will require an optical disk jukebox controlled by a computer. The scanned images will continue to be produced at UCLA; the archive will reside in Bethesda; and the workstations for the standardized readings will be put in place by NIAMS and NCHS. Dr. Thoma said that the Internet will be an important element in the system. The image files to be transmitted are large--from 5 to 10 megabytes each--and they can take up to 24 minutes to transmit uncompressed (at 56 kilobit/second). As Internet increases to gigabit speeds, transmission will be greatly enhanced.

XX. HISTORY OF MEDICINE ACQUISITIONS

Dr. John Parascandola, Chief of NLM's History of Medicine Division, reported on NLM's historical collections. They contain some 600,000 items printed before 1914, two million manuscript items, 57,000 prints and photographs, and 3,000 audiovisuals (pre-1971). Materials are generally added through gift or purchase. Using slides, Dr. Parascandola showed pictures of a number of notable recent acquisitions, including what is considered the oldest book printed (with moveable type) on a medical subject (A.D. 1466). In addition, the personal papers of Dr. C. Everett Koop from the period of his tenure as Surgeon General were added to the manuscript collection. In sum, NLM's historical collections are the finest in the country, if not the world, Dr. Parascandola, said.

XXI. ADJOURNMENT

The meeting was adjourned at 12:30 p.m. Friday January 31.

Subcommittee Meeting on Wednesday, January 29.

Extramural Programs Subcommittee--2:30-4:30 P.M.
(Attachment B)

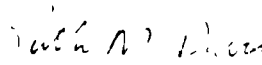
ACTIONS TAKEN BY THE BOARD OF REGENTS

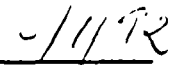
1. Dr. Davis appointed Dr. Zimble (chair), Ms. Carter, and Mr. Howard to serve as a committee to nominate a Board Chair for 1992-1993.
2. The Board reaffirmed the Operating Procedures.
3. The Board concurred with the recommendations of the Extramural Programs Subcommittee. Grant applications recommended for further consideration 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)
Executive Secretary





Ruth M. Davis, Ph.D. (Date)
Chair

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ATTACHMENT "B"

**BOARD OF REGENTS
EXTRAMURAL PROGRAMS SUBCOMMITTEE MEETING**

January 29, 1992

2:30 to 4:30 p.m.

ATTENDEES

Subcommittee Members Present:

Ms. Rachael K. Anderson, Chair
Ms. Beverly E. Allen
Ms. Wendy Carter
Dr. Ruth M. Davis
Capt. Kathleen McCormick
Dr. H. Kenneth Walker

NLM Staff Present:

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

RESUME OF INITIAL REVIEW GROUP RECOMMENDATIONS
(PRIVILEGED COMMUNICATION)

SUMMARY STATISTICS
RESEARCH (EXCLUDING R15 APPLICATIONS)

COUNCIL DATE: JAN./FEB. 1992
MEETING DATE: OCT./NOV. 1991

REVIEW GROUP: NLM BIOMEDICAL LIBRARY REVIEW COMMITTEE

TOTAL NUMBER OF APPLICATIONS REVIEWED.....	36
TOTAL NUMBER OF APPLICATIONS SCORED	25
PERCENT OF APPLICATIONS SCORED	69.4%
TOTAL NUMBER OF APPLICATIONS NRFC	11
PERCENT OF APPLICATIONS NRFC	30.6%
TOTAL NUMBER OF APPLICATIONS DEFERRED.....	0
PERCENT OF APPLICATIONS DEFERRED.....	%
MEAN PRIORITY SCORE.....	213
PRIORITY RANGE	118 390
TOTAL DOLLARS REVIEWED.....	23,648,097
TOTAL DOLLARS SCORED	12,701,487
TOTAL DOLLARS DISALLOWED OR APPROVED ABOVE THE REQUESTED AMOUNT.....	2,082,545
TOTAL DOLLARS NRFC	8,864,065
TOTAL DOLLARS DEFERRED.....	0

RESUME OF NATIONAL ADVISORY COUNCIL RECOMMENDATIONS
(PRIVILEGED COMMUNICATION)

SUMMARY STATISTICS

COUNCIL DATE: JAN./FEB. 1992

COUNCIL: NATIONAL LIBRARY OF MEDICINE

TOTAL NUMBER OF APPLICATIONS REVIEWED.....	4
TOTAL NUMBER OF APPLICATIONS CF.....	2
PERCENT OF APPLICATIONS CF.....	50.0%
TOTAL NUMBER OF APPLICATIONS NRFC	1
PERCENT OF APPLICATIONS NRFC.....	25.0%
TOTAL NUMBER OF APPLICATIONS DEFERRED/NO ACTION.....	1
PERCENT OF APPLICATIONS DEFERRED/NO ACTION.....	25.0%
MEAN PRIORITY SCORE (FOR COUNCIL CF).....	130
PRIORITY RANGE (ALL APPLICATIONS)	128 318
TOTAL DOLLARS REVIEWED (REQUESTED AMOUNT).....	2,185,629
TOTAL DOLLARS CF.....	1,420,102
TOTAL DOLLARS DISALLOWED OR APPROVED ABOVE THE REQUESTED AMOUNT.....	0
TOTAL DOLLARS NRFC.....	563,716
TOTAL DOLLARS DEFERRED/NO ACTION.....	201,811

RESUME OF INITIAL REVIEW GROUP RECOMMENDATIONS
(PRIVILEGED COMMUNICATION)

SUMMARY STATISTICS
RESEARCH (EXCLUDING R15 APPLICATIONS)

COUNCIL DATE: JAN./FEB. 1992
MEETING DATE: OCT./NOV. 1991

REVIEW GROUP: SPECIAL STUDY SECTION
H

TOTAL NUMBER OF APPLICATIONS REVIEWED.....	4
TOTAL NUMBER OF APPLICATIONS SCORED	2
PERCENT OF APPLICATIONS SCORED	50.0%
TOTAL NUMBER OF APPLICATIONS NRFC .	2
PERCENT OF APPLICATIONS NRFC	50.0%
TOTAL NUMBER OF APPLICATIONS DEFERRED.....	0
PERCENT OF APPLICATIONS DEFERRED.....	%
MEAN PRIORITY SCORE.....	137
PRIORITY RANGE	136 138
TOTAL DOLLARS REVIEWED.....	173,889
TOTAL DOLLARS SCORED	63,765
TOTAL DOLLARS DISALLOWED OR APPROVED ABOVE THE REQUESTED AMOUNT.....	32,170
TOTAL DOLLARS NRFC	77,954
TOTAL DOLLARS DEFERRED.....	0

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
2 R01 LM04957-04A1	KNOWLEDGE BASED SIMULATION OF DNA METABOLISM	04A1 100,331 05 101,644 06 105,609
1 R01 LM05300-01A1	OPTIMIZATION OF DCT TYPE IMAGE COMPRESSION	01A1 58,457 02 68,455 03 69,064
1 R01 LM05357-01A1	KNOWLEDGE REPRESENTATION IN MEDICAL LITERATURE	01A1 170,977 02 167,812
1 R01 LM05406-01	KNOWLEDGE-BASED INTERPRETATION OF CARDIAC ARRHYTHMIAS	01 67,773 02 113,628 03 121,811
1 R01 LM05407-01	CHEMISTRY AND MEDICAL DEBATE--1650-1750	01 32,636 02 9,126 03 1,068
1 R01 LM05409-01	TRANSFORMATION OF GERMAN ACADEMIC MEDICINE 1750-1820	01 11,250 02 9,685
1 R01 LM05414-01	DUALS SECONDARY REVIEW: AG	01 84,623 02 88,943 03 89,246 04 90,915
1 R01 LM05416-01	LATENT SEMANTIC INDEXING IN SUPPORT OF PATIENT DATA RETR	01 114,279 02 111,948 03 116,610

APPLICATIONS APPROVED BY COUNCIL
(ARRANGED NUMERICALLY BY PROGRAM)

COUNCIL DATE: JAN./FEB. 1992

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
1 R01 LM05422-01	AUTOMATED KNOWLEDGE DISCOVERY FROM CLINICAL RECORDS	01 144,486 02 151,247 03 157,298
1 R01 LM05425-01	A CELL PHYSIOLOGY DATABASE	01 103,657 02 124,655 03 129,583
1 R01 LM05428-01	DUALS SECONDARY REVIEW: HS EVALUATION OF APACHE 111 CLINICAL INFORMATION SYSTEM	01 253,290 02 258,174 03 237,033
1 R01 LM05429-01	DUALS SECONDARY REVIEW: HG MATHEMATICS AND MOLECULAR BIOLOGY	01 20,497

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

COUNCIL DATE: JAN./FEB. 1992

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
1 R29 LM05404-01	DUALS SECONDARY REVIEW: CA	01 64,620
		02 67,205
		03 69,893
		04 72,688
		05 75,595
1 R29 LM05413-01	A BIOLOGICAL KNOWLEDGE-BASE MANAGEMENT SYSTEM	01 81,301
		02 70,826
		03 75,590
		04 58,784
		05 63,061

APPLICATIONS APPROVED BY COUNCIL - DUAL REVIEW
 (ARRANGED NUMERICALLY)

COUNCIL DATE: JAN./FEB. 1992

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

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
2 R01 CA43114-06A1	DUALS SECONDARY REVIEW: LM OBSERVER EFFICIENCY IN DETECTION AND DISCRIMINATION	06A1 220,243 07 208,631 08 221,010
1 R01 HS07177-01	DUALS SECONDARY REVIEW: LM EFFECT OF DECISION SUPPORT SYSTEMS ON CLINICAL REASONING	01 297,857 02 299,396 03 172,965

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

A G E N D A

100th Meeting of the

BOARD OF REGENTS

9:00 a.m., May 28-29, 1992

Board Room
Mezzanine of
National Library of Medicine

MEETING OPEN: 9:00 a.m. to 3:15 p.m. on May 28, and from 9:00 a.m. to 12:15 p.m.
on May 29.

MEETING CLOSED: 3:15 p.m. to 3:45 p.m. on May 28 for the review of grant applications.

1. CALL TO ORDER AND INTRODUCTORY REMARKS Dr. Ruth M. Davis

2. REMARKS BY THE DIRECTOR OF RESEARCH ON WOMEN'S HEALTH, NIH Dr. Vivian W. Pinn

3. REMARKS BY THE ASSOCIATE DIRECTOR FOR MINORITY PROGRAMS, NIH Dr. John Ruffin

4. REMARKS FROM THE SURGEON GENERAL'S OFFICE, PHS Dr. M. Ann Drum

- COFFEE BREAK

5. CONSIDERATION OF JANUARY MINUTES TAB I Dr. Ruth M. Davis
(Agenda Book)

6. FUTURE MEETING DATES Dr. Ruth M. Davis

Fall Meeting: October 1-2, 1992 (Th-F)--CONFIRMED
Winter Meeting: January 28-29, 1993 (Th-F)--CONFIRMED
Spring Meeting: May 27-28, 1993 (Th-F)--PROPOSED

(Subcommittees meet, when necessary, the day before the full Board.)
(On May 27, Extramural Programs Subcommittee 2:00-3:30 p.m.)

PLEASE NOTE: Medical Library Association Annual Meeting, 5/14-20/93, Chicago
(Potential conflicts with May 1993 meeting dates.) AMIA Annual Meeting, 5/9-12/93, St. Louis

5/22/92

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| <p>7. REMARKS BY THE DIRECTOR, NLM

Discussion</p> | <p><u>TAB II</u></p> | <p>Dr. Donald A. B. Lindberg

Board Members</p> |
| <p>8. NIH STRATEGIC PLAN

Discussion</p> | <p><u>TAB III</u></p> | <p>Dr. Donald A. B. Lindberg
Dr. Ruth M. Davis
Dr. E. Kenneth Walker

Board Members</p> |
| <p>9. REPORT FROM THE BOARD OF SCIENTIFIC
COUNSELORS, NATIONAL CENTER FOR
BIOTECHNOLOGY INFORMATION</p> | <p><u>TAB IV</u></p> | <p>Dr. Robert T. Sauer</p> |
| <p>10. THE FRANK B. ROGERS' AWARD</p> | | <p>Dr. Donald A. B. Lindberg</p> |
| <p>11. NLM DIRECTOR'S AWARD
<i>(Photographer will take pictures of presentations.)</i></p> | | <p>Dr. Donald A. B. Lindberg</p> |
| <p>LUNCHEON CATERED IN CONFERENCE ROOM "B" 12:15 - 1:00
<i>(Photograph of Board Members in front of Library.)</i></p> | | |
| <p>12. OUTREACH ACTIVITIES:

NLM's HBCU Toxicology Information
Outreach at Texas Southern University

Discussion</p> | <p><u>TAB V</u></p> | <p>Dr. Elliot Siegel

Dr. Henry Lewis III

Ms. Rachael K. Anderson
Dr. Lois E. DeBakey
Other Board Members</p> |
| <p>13. MEDLARS USAGE 1987-1991

Discussion</p> | <p><u>TAB IX</u></p> | <p>Mr. Sheldon Kotzin

Dr. Lawrence H. Cohn
Other Board Members</p> |

COFFEE BREAK

- 14. REPORT FROM EXTRAMURAL PROGRAMS TAB VII Dr. Milton Corn
 - a. Budget Overview Tab A
 - b. Revision of IAIMS Program Tab B
 - c. Review Procedure for HPCC-IAIMS
Demonstration Projects Tab C
 - d. Status of NLM/NSF HPCC
INTERNET Connections Tab D

Discussion Ms. Rachael K. Anderson
EP Subcommittee Members
Other Board Members

MEETING CLOSED FOR THE REVIEW OF GRANT APPLICATIONS, MAY 28, 3:15 P.M.

- 15. REVIEW OF GRANT APPLICATIONS (Application Workbook) Dr. Roger W. Dahlen

(Conflict-of-interest instructions in front of workbook for your information and review.)

 - RESEARCH TAB I
 - A. Medical Informatics Tab A
 - B. Biotechnology Tab B
 - C. Library and Information Science Tab C
 - RESOURCE TAB II
 - A. Information Systems Tab A
 - B. Information Access Tab B
 - C. IAIMS Tab C
 - SPECIAL SCIENTIFIC PROJECTS TAB III
 - PUBLICATION APPLICATIONS TAB IV
 - SMALL BUSINESS INNOVATIVE RESEARCH TAB V
 - SUMMARY LIST OF APPLICATIONS NOT
RECOMMENDED FOR FURTHER CONSIDERATION TAB VI
 - INTERIM ACTIONS TAB VII

R E C E S S * * * * *

Leiter Lecture on "RENAISSANCE TEAMS AND SCIENTIFIC VISUAL COMMUNICATIONS" (Lister Hill Center Auditorium) 4:00-5:30 Ms. Donna J. Cox

FRIENDS' RECEPTION IN THE LOBBY OF THE LISTER HILL CENTER 5:45-7:00 P.M.

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

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16. INTERLIBRARY LOAN SERVICE TO FEDERAL LIBRARIES (Board action necessary.) TAB VIII Mrs. Lois Ann Colaianni

Discussion Ms. Wendy Carter Mr. Joseph H. Howard Other Board Members

17. LONG-RANGE TOXICOLOGY PLANNING PANEL STATUS REPORT TAB VI Dr. Elliot Siegel Dr. Henry Kissman

Discussion Ms. Beverly E. Allen Other Board Members

COFFEE BREAK

18. REPORT FROM THE BOARD OF SCIENTIFIC COUNSELORS, LISTER HILL CENTER TAB X Dr. James J. Cimino

19. VIDEOTAPE ON DISCOVERY OF KALLMANN GENETIC DEFFECT

20. PLAN FOR HIGH PERFORMANCE COMPUTING COMMUNICATIONS TAB XI Dr. Daniel R. Masys

Discussion Dr. Robert E. Kahn Other Board Members

21. REPORT OF THE NOMINATING COMMITTEE Dr. James A. Zimble

22. SOMEHOW, SOMEWAY, SOMETIME: THE REGIONAL MEDICAL PROGRAMS --A VIDEOTAPE-- TAB XII

23. ADJOURNMENT 12:15 Dr. Ruth M. Davis

DEPARTMENT OF HEALTH AND HUMAN SERVICES

NATIONAL INSTITUTES OF HEALTH

NATIONAL LIBRARY OF MEDICINE

BOARD OF REGENTS

MINUTES OF THE 100TH MEETING

MAY 28-29, 1992

BOARD ROOM

NATIONAL LIBRARY OF MEDICINE

BETHESDA, MARYLAND

**DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE**

THE BOARD OF REGENTS OF THE NATIONAL LIBRARY OF MEDICINE

**Minutes of Meeting 1/2/
May 28-29, 1992**

The Board of Regents of the National Library of Medicine was convened for its one-hundredth meeting at 9:00 a.m. on Thursday, May 28, 1992, in the Board Room of the National Library of Medicine, Bethesda, Maryland. Dr. Ruth M. Davis, President of The Pymatuning Group, 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 27, 1992, the meeting was open to the public from 9:00 a.m. to 3:15 p.m. on May 28 and from 9:00 a.m. to 12:15 p.m. on May 29. The meeting was closed from 3:15 to 3:45 p.m. on May 29 for the review, discussion, and evaluation of grant applications. A Board roster is enclosed under Attachment A.

Board members present were:

Dr. Ruth M. Davis, Chair	Dr. Lawrence J. DeNardis
Ms. Beverly E. Allen	Dr. Robert E. Kahn
Ms. Rachael K. Anderson	Dr. Jeanne Spurlock
Dr. Lawrence H. Cohn (5/28)	Dr. H. Kenneth Walker
Dr. Mary E. Clutter	Dr. James A. Zimble

Alternates to ex officio members present were:

Ms. Wendy Carter, representing Dr. James W. Holsinger, Jr.
Col. Emmanuel Cassimatis, representing Lt. Gen. Frank F. Ledford, Jr.
Capt. Bart Hogan, representing Vice Adm. Donald F. Hagen.
Capt. Kathleen A. McCormick, representing Dr. Antonia C. Novello.
Col. Jacqueline Morgan, representing Lt. Gen. Alexander M. Sloan.
Dr. Richard E. Rowberg, representing Dr. James H. Billington.

Unable to attend:

Dr. Ronald E. Cape
Mr. Joseph H. Howard
Dr. Alvy Ray Smith

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

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

National Library of Medicine staff members attending this meeting included:

Dr. Donald A. B. Lindberg, Director
Mr. Kent A. Smith, Deputy Director
Dr. Harold M. Schoolman, Deputy Director for Research and Education
Ms. Cassandra R. Allen, Head, Collection Access Section, LO
Mr. Harry Bennett, Acting Director, OCCS
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
Dr. George F. Hazard, Jr., Chief, Chemical Information Services Section, SIS
Dr. Richard K. C. Hsieh, Director for International Programs
Ms. Betsy Humphreys, Deputy Associate Director, LO
Mr. Charles R. Kalina, Special Projects Officer, OD
Dr. Henry M. Kissman, Associate Director, SIS
Mr. Sheldon Kotzin, Chief, Bibliographic Services Division, LO
Ms. Susan U. Levine, Chief, Office of Financial Management, OD
Mr. James S. Main, Chief, Audiovisual Program Development Branch, LHNCBC
Dr. Daniel R. Masys, Director, Lister Hill National Center for Biomedical Communications
Mr. Robert B. Mehnert, Chief, Office of Inquiries and Publications Management, OD
Mr. David Nash, EO Officer
Dr. Elliot R. Siegel, Associate Director, Health Information Programs Development
Dr. Sidney Siegel, Chief, Office of Hazardous Substances Information, SIS
Dr. Melvin L. Spann, Chief, Biomedical Information Services Branch, SIS
Mr. Richard T. West, Chief, Office of Program Planning and Evaluation, EP

Others present included:

Dr. James J. Cimino, Asst. Professor of Medicine, Center for Medical Information, College of Physicians and Surgeons, Columbia University
Dr. M. Ann Drum, Special Asst. for Program Activities, Office of the Surgeon General, PHS
Dr. Henry Lewis III, Dean, College of Pharmacy and Health Sciences, Texas Southern University
Dr. Vivian W. Pinn, Director of Research on Women's Health, NIH
Mr. Chester Pletzke, Director, Learning Resources Center, USUHS
Dr. John Ruffin, Assoc. Director for Minority Programs, NIH
Dr. Robert T. Sauer, Professor, Department of Biology, MIT
Col. John Silva, Professor, Department of Surgery, USUHS

I. OPENING REMARKS

Dr. Ruth M. Davis, Chair, welcomed the Regents and guests to the one-hundredth meeting of the Board of Regents of the National Library of Medicine. She introduced Dr. M. Ann Drum, representing the Surgeon General Novello's office; Dr. Vivian W. Pinn, Director of Research on Women's Health, NIH; Dr. John Ruffin, NIH Associate Director for Minority Programs; new ex officio Regent Col. Emmanuel G. Cassimatis, U.S. Army; Dr. Henry Lewis III, Dean of the Texas Southern University College of Pharmacy and Health Sciences; and Dr. Robert T. Sauer, Chair, National Center for Biotechnology Information's Board of Scientific Counselors.

II. REMARKS BY THE DIRECTOR OF RESEARCH ON WOMEN'S HEALTH

Dr. Vivian W. Pinn said that the new Office of Research on Women's Health (within the NIH Office of the Director) was established in September 1990; she was appointed the first permanent director in November 1991. A task force on women's health issues in the Public Health Service was convened in 1985. The resulting report recommended that biomedical and behavioral research should be expanded to ensure emphasis on women's diseases. Since that time, although NIH has had a policy on the inclusion on women in clinical trials, there has not been strict adherence to it. The mission of the Office of Research on Women's Health is to ensure that research related to women's health is conducted and supported by NIH. The office has three mandates: to make sure that research concerning diseases and disorders that are more prevalent in women is supported by NIH; to see that women are represented in biomedical and behavioral research studies and clinical trials; and to take steps to increase the participation of women in biomedical research. The office held a public hearing, followed by a workshop, at which scientists and community activists discussed the gaps in our knowledge about women's health and what should be the focus of the program. A report from that hearing and workshop is now being prepared and will be sent to the NIH Director. One thing made clear at those meetings is that women's health should be viewed as a continuum, from birth to old age, and not focused exclusively on reproductive issues. Dr. Pinn noted that her office does not directly fund research on women's health; all funding is done through the various NIH institutes and thus utilizes the established peer-review process. In some cases, Dr. Pinn said, her office can provide support to supplement or enhance a project.

Another project is the Women's Health Initiative (frequently confused with the Office of Research on Women's Health). The Women's Health Initiative, a separate NIH project with its own budget, was announced as the largest study ever to be done by NIH (150,000 subjects) to look at the major causes of death, disability, and frailty in post-menopausal women--heart disease, cancer, and osteoporosis. The long-term study is expected to cost \$600 million over 14 years. Dr. Pinn invited the Regents to attend a workshop later in June at which will be discussed the barriers and other problems faced by women and minorities in biomedical research in such areas as recruitment, retention, re-entry, and advancement.

III. REMARKS BY THE ASSOCIATE DIRECTOR FOR MINORITY PROGRAMS

Dr. John Ruffin said there are two primary objectives for his office: to narrow the health gap between minorities and nonminorities, and to get more minority students and professionals into the biomedical research pipeline. Dr. Ruffin cited statistics showing the disparity between the health status of minorities and nonminorities. Training more minority health professionals is one way to ameliorate this inequity; many of those trained will return to the communities that are in need of improved health services. The two objectives are thus closely related. At the present time there are relatively few minorities working in research laboratories and serving on review committees and advisory councils. Dr. Ruffin cited disheartening statistics on how few Blacks, Hispanics, and Native Americans are receiving advanced degrees in the life sciences. He said that NIH has had several programs, dating back to the late sixties and early seventies, to address these problems. The MARC (Minority Access to Research Careers) and the MBRS (Minority Biomedical Research Support) programs have both been useful and had a positive impact. At present, the MARC program supports 60 minority institutions in the U.S.; some 450 students are in these supported programs. There have been more than 2,800 graduates since the MARC began. The MBRS supports some 1,500 students each year; more than 15,000 students have graduated during its existence. One important goal of Dr. Ruffin's office is to locate and track graduates of the programs to see if the programs are measuring up to their potential. One benefit of these programs is that they have fostered a number of other minority-related programs at the NIH, for example, the Minority Hospital Research Apprenticeship Program, the MARC Pre-doctoral Program, and the Research Supplement Program. Dr. Ruffin noted that the NLM Board of Regents had the foresight to sponsor an outreach planning activity under Dr. Michael E. DeBakey that will result in the Library's information services becoming more available to health professionals serving minority populations in underserved areas. He also noted with approval the NLM's toxicology outreach initiative to minority schools and the Lister Hill Center's Undergraduate Research Study Program aimed at minority engineering students. He emphasized that his office is not intended to be a substitute for any of these efforts, but rather to be an extension of the other NIH components and to fill in the gaps and address missed opportunities. Dr. Ruffin described how he organized a fact-finding meeting with representatives of various professional organizations throughout the country to discuss matters related to minority health and research. Some of the recommendations at that meeting were: NIH should set clear goals and provide sufficient funds to ensure that minority health is a high priority, by the year 2000 life expectancy rates and rates of illness should be equal for all citizen groups, more minority members should be included in clinical studies, and a series of recommendations dealing with training minorities for careers in biomedicine. Dr. Ruffin has also been meeting with representatives of NIH organizations that represent various minorities--African-Americans, Hispanic Americans, Asian-American and Pacific Islanders, and Native Americans.

IV. REMARKS FROM THE SURGEON GENERAL'S OFFICE

Dr. M. Ann Drum highlighted a number of activities that Surgeon General Novello is currently emphasizing. Children's health is high among these, especially health aspects of the

Presidential initiative to see that by the year 2000 children are prepared for school and ready to learn. The Department's program is called "Healthy Children Ready to Learn." Dr. Drum described a number of PHS activities related to this initiative, including conferences and workshops on various aspects. Curbing tobacco use is another important issue: two recent reports on the health benefits of smoking cessation and smoking and health in the Americas (with the Pan American Health Organization) have been issued, a report on smokeless tobacco will be published soon, and a task force on smoking and youth has just been formed and will soon begin its work. Alcohol is another area of focus: five reports have been released on various aspects of the problem, including underage drinking and advertising aimed at youth. The Surgeon General also chairs an interagency task force on labeling alcoholic beverages. Other areas of emphasis by the Surgeon General are domestic violence and women's issues, HIV/AIDS, organ transplantation, and a Hispanic health initiative.

V. CONSIDERATION OF MINUTES OF PREVIOUS MEETING

The Regents approved without change the minutes of the January 30-31, 1992, meeting.

VI. DATES OF FUTURE MEETINGS

The Board will meet next on October 1-2, 1992. The winter meeting, on January 28-29, 1993, was confirmed. The meeting for next spring was set for May 27-28, 1993. [After the meeting, the May 1993 dates were changed to May 26-27 (Wednesday and Thursday). All Regents had no conflict with the changed dates.]

VII. REPORT FROM THE NLM DIRECTOR

Dr. Donald A. B. Lindberg reported that the 1992 NLM budget of approximately \$100 million contains modest amounts earmarked for Outreach and High Performance Computing and Communications. Although these sums do not approach those recommended by our advisors, they are nonetheless welcome. The President's budget request for 1993 contains \$108,662,000 for NLM. This figure includes a transfer of some \$4 million from the National Institute of General Medical Sciences to support GenBank. In the area of personnel, Dr. Lindberg noted with sadness several deaths: Mr. Arthur J. Broering, Former Deputy Associate Director for Extramural Programs; Dr. Charles Walker, recently appointed Director of Outreach Programs; and Dr. Max Michael, former member of the Board of Regents. He announced that Dr. Elliot R. Siegel, Assistant Director for Planning and Evaluation, has been appointed to head a new office, the Office of Health Information Programs Development, which will include responsibility for outreach, international affairs, and planning. Dr. Lindberg announced several other appointments, including Dr. Stephen Strickland, a historian, who has joined the History of Medicine Division. Dr. Henry Kissman, head of the Specialized Information Services for 20 years, is retiring. The Director noted that NLM's previously reported progress in encouraging the use of acid-free paper in biomedical publishing has been highlighted in a report to the Congress prepared by Federal agencies.

VIII. NIH STRATEGIC PLAN

Dr. Lindberg reported briefly on the evolution of the NIH strategic plan, the series of field hearings on a "framework" for the plan, and the plan's current status. After the Board's last meeting, at which the plan was discussed, Regents Kenneth Walker and Ruth Davis both sent letters to the NIH Director emphasizing the importance of communications and education in the plan and offering the help of the NLM Board. Dr. Walker then reported on the letter he wrote to Dr. Healy in which he suggested that a sixth objective on information, communication, and education, be added to the draft plan (the first five are: critical science and technology, research capacity, intellectual capital, stewardship of public resources, and public trust). His letter also suggested that the plan might highlight information technology as a critical technology within the first objective. Dr. Ruth Davis reported that she also wrote to Dr. Healy, endorsing the suggestions that Dr. Walker had made on behalf of the Board. Dr. Healy replied, thanking the Board for its offer of assistance, and noting that there will be a large extramural task force convened on June 23-25 that will consider topics such as those raised by the NLM Board. Dr. Davis was subsequently invited to participate in that meeting (and also in a June 10 meeting of the NIH Director's Advisory Committee), but her schedule precludes it. Dr. H. Kenneth Walker will take her place at the June 10 meeting. Dr. Kathleen McCormick suggested that NLM's concerns might well fit in the part of the plan that deals with infrastructure. This part of the plan might be modified to make information/communications/education more explicit.

IX. BOARD OF SCIENTIFIC COUNSELORS, NCBI

Dr. Robert T. Sauer, Chairman of the National Center for Biotechnology Information Board of Scientific Counselors, reported on that Board's most recent review of NCBI programs. He said that the Board was enthusiastic about both the quality of the basic science being done by the Center and the practical aspects of the applications being developed there. He said the Center faces a number of challenges: the smooth transition of GenBank from the National Institute of General Medical Sciences to the NCBI, creating public awareness of the work going on within the NCBI, further database development to maximize the usefulness of the sequence information resulting from the genome project, and developing a close and productive relationship with small commercial software developers.

X. AWARDS

Dr. Lindberg presented the 1992 NLM Frank B. Rogers Award to Mr. William Willmering, Head of the Serial Records Section, Technical Services Division. Mr. Willmering was cited for leadership of the section and especially for his management of projects dealing with automating serials processing. Dr. Lindberg next presented the 1992 NLM Director's Award to Dr. Maria Farkas, Index Section, Bibliographic Services Division. Dr. Farkas was recognized for her sustained superior service as a senior indexer, reviser, and linguist. At a ceremony later in the meeting, Dr. Henry Kissman, retiring as Associate Director for Specialized Information Services, was presented with the 1992 NLM Director's Award and received a tribute from the Assistant Secretary for Health.

XI. OUTREACH ACTIVITIES

Dr. Elliot R. Siegel, NLM Associate Director for the Office of Health Information Programs Development, noted that the new toxicology information outreach program for nine Historically Black Colleges and Universities had been presented to the Board last fall by Dr. Melvin Spann. The objective of the program is to strengthen the capacity of these HBCU's to train health professional faculty and students to be able to use NLM's toxicology, environmental health, and hazardous waste databases. Dr. Siegel introduced Dr. Henry Lewis III, Dean of the Texas Southern University College of Pharmacy and Health Sciences in Houston. That institution is one of the nine participants in NLM's toxicology outreach initiative. Dr. Lewis is also President of the Association of Minority Health Professional Schools.

Dr. Lewis used slides to illustrate how minority populations around the nation too often live near hazardous waste sites. This is mirrored in the startling gap in health status between majority and minority populations. He noted that there is a lack of knowledge on the part of minorities about the dangers of hazardous wastes; in fact, no one knows much about the long-term effects of many of the chemicals to which populations are exposed. Dr. Lewis said he was optimistic that the toxicology outreach program could make a positive difference. Equipment and software for accessing NLM databases have been delivered to the nine institutions and training has been held. At Texas Southern University, toxicology online training sessions have been held for both faculty and graduate students. Great interest has been generated and some faculty are now requesting direct access from their offices. Dr. Lewis said the NLM outreach program fits in well with a number of current Texas Southern initiatives, including such programs as the Center for the Study of Ethnic Diseases (a five-year NIH grant-supported project), the Campus Community Access Program (an FDA-funded project to provide consumer information on drugs and food to minority populations), the Minority Center for Toxicological Research (a newly approved basic science program funded by the CDC), a proposed Ph.D. program in environmental science, and an undergraduate environmental health program. Outside the university, the toxicology outreach program will be extended to reach minority pharmacists and physicians in the Houston area. Ambitious future projections include using black churches to reach the community, a training seminar for public school teachers, science fairs for minority students that will include toxicology projects, public housing seminars, the distribution of literature in the minority community and, finally, an evaluation of outcomes. In sum, the project is well-started and making a difference already on the campus at Texas Southern University. The prospects for the future are exciting.

After Dr. Lewis' presentation, Ms. Rachael Anderson commented that Texas Southern University is an especially appropriate site for this project because of the characteristics of the school, the minority health professionals involved, and the nature of the community at large. She lauded their efforts to get the information out to the public as well as the health professionals. The evaluation of this aspect of the program will be most useful.

XII. MEDLARS USAGE

Mr. Sheldon Kotzin, Chief of the Bibliographic Services Division, reported on recent trends (1987-1991) in the use of NLM's MEDLARS databases. In 1987 there were three primary modes of access to MEDLARS data (primarily the MEDLINE database): online to the NLM, online to commercial vendors, and through foreign MEDLARS centers. Using slides, Mr. Kotzin presented a variety of usage statistics. Among the trends between 1987 and 1991 are a general increase in usage (as measured by connect-hour), a shift to locally mounted files containing MEDLARS data, and the appearance of a number of commercial CD-ROM products containing MEDLARS data. The number of MEDLARS searches performed on NLM's computer rose from 3.8 million in 1987 to 5.8 million in 1991. One reason for the rise is the increasing use of Grateful Med for searching MEDLINE by individual health professionals. The number of billed user codes increased by 350 percent, to about 50,000, in the same period. The number of characters transmitted online has doubled in the last five years; the number of citations transmitted online increased by 35 percent. This indicates that users are receiving much more data than ever before. Actual total connect-hours of use, however, has leveled off. This is the result of more efficient usage of the NLM computer and faster telecommunication rates. Mr. Kotzin presented charts showing trends in MEDLINE users--individual usage (primarily as a result of Grateful Med) has increased greatly in the last five years; usage in medical schools has declined somewhat (partly the result of the introduction of MEDLINE/CD-ROM products). Statistics on foreign usage also show an overall increase over the last five years (although usage declined at several of the smaller foreign centers). Several large commercial vendors, including Dialog and Maxwell Online, lease NLM data and offer access to MEDLINE and several other NLM databases. They also have seen a leveling in use in recent years (as measured by connect-hours). NLM's "share" of overall MEDLINE searching has remained constant from 1987 to 1991 at about 47 percent. Mr. Kotzin showed on a world map that some 90 countries have access to MEDLINE on CD-ROM. Some 62 percent of the sales of MEDLINE on CD-ROM are outside the U.S. He described the growth in number of licensees and connect hours of locally mounted MEDLINE subsets, primarily at universities. The nine-campus University of California MEDLINE system is by far the largest. Finally, Mr. Kotzin showed statistics from the University of Connecticut on how the use of MEDLINE/CD-ROM there had resulted in less online use of the NLM computer for that database; use of other NLM databases there has risen dramatically, however. Mr. Kotzin also presented statistics from Connecticut showing how the price per search had dropped in recent years. To sum up, Mr. Kotzin said, although there have been shifts in online usage, the Library has been successful in developing its own services and working with commercial and academic licensees to extend MEDLINE availability even more.

Dr. Lawrence Cohn referred to an article and an accompanying editorial in the May 21 *New England Journal of Medicine* about the reading habits of medical students. The authors strongly recommended that medical students and house officers be trained in the use of electronic databases. In response to Dr. Cohn's question about the Library's ability to handle

further growth, Mr. Kotzin replied that the NLM was well positioned to handle many more individual user codes without stressing the system. Ms. Rachael Anderson commented that she sees a rise in interest in network CD-ROMs; also flat-rate pricing schemes have great attraction to users. Mr. Kotzin briefly described NLM's current experiments with flat-rate pricing with various organizations; data is still being gathered. Dr. H. Kenneth Walker commented that at his institution (Emory University), for the last four years, all faculty, students, and house staff have been provided with free access to MEDLINE; he requires his students to have an abstract at the next morning report for every patient.

XIII. REPORT FROM EXTRAMURAL PROGRAMS

Dr. Milton Corn, Acting Associate Director for Extramural Programs, briefly drew attention to several items in the Extramural Programs budget. He pointed out that the LAIMS budget for the remaining fiscal year is \$657,000; the Medical Informatics budget as of May 1992 is only \$100,000 (the average grant for this program is usually around \$115,000); Biotechnology, however, has almost \$1.0 million left to award in this fiscal year.

Revised LAIMS Program for FY 1993

The program is now ten years old, Dr. Corn noted, and while it has been an excellent one, it needs revision. He presented the following proposed changes to the program:

1. Change the name to Integrated Advanced Information Management Systems, replacing "academic" with "advanced."
2. Incorporate present Phases II and III into one "operational" Phase and keep the "planning" Phase:

Phase I - Planning--two years at \$150,000 p.a.

Phase II - Operational--five years at \$500,000 p.a.,
plus \$50,000 p.a. for training.

The total cost for a complete revised LAIMS will amount to \$3.05 million over seven years, while the original LAIMS required ten years and cost \$5.25 million. The emphasis for the revised LAIMS, as it was for the old, is still on creativity and optimal design for each institution. However, Dr. Corn noted, some guidelines will be given to the applicants: Mandatory incorporation of HPCC, definition of milestones, and encouragement of the incorporation of patient-care elements and of other NLM programs, and the addition of a training component.

Dr. Corn asked the Board for an expression of concurrence in principle with the proposed changes. Ms. Anderson related that the Extramural Programs Subcommittee the day before had concurred with the proposed changes.

To a question by Dr. Clutter what was meant by incorporation with other NLM programs, Dr. Corn responded that NLM would like IAIMS programs to include online access to NLM databases, increased use of networks in general, and outreach elements.

Dr. Kahn questioned the vagueness of the term "mandatory incorporation of HPCC." He emphasized that the phrase "the IAIMS must be network-accessible," would better address today's concepts of HPCC. Dr. Corn replied that NLM did not intend to require IAIMS to include "full" HPCC implementation. He stated further that the actual language of the announcement draft provided reasonably clear guidance to applicants.

The Board approved in principle the changes to the IAIMS Program with the understanding that NLM consider the comments and suggestions and incorporate them, as needed, into the announcement.

[Announcement language, not presented at the Board meeting reads that "The operational plan must provide: Substantial incorporation of one or more elements of HPCC/NREN (for example, connection to INTERNET) into the institution's information system. Other examples include collaboration through high-speed networks, distance learning, addressing of computationally intensive problems in molecular biology in a distributed environment, visualization techniques, and network-based digital imaging."]

**MEETING CLOSED FOR THE REVIEW OF GRANT APPLICATIONS
MAY 28, 3:15 TO 3:45 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 applications workbook, and reminded them to sign, at the conclusion of the grant applications review, the statement noting that they had not participated in the discussion of any applications which presented a conflict of interest.

The Board reviewed 41 applications, requesting \$10,178,712 and recommended for further consideration 29 applications in the amount of \$6,479,408 for the total years requested. Twelve applications in the amount of \$2,883,232 were not recommended for further consideration. Grant applications recommended for further consideration by the Board are listed in the summary actions (Attachment C). Interim actions taken by the Board's Extramural Programs staff since the January meeting were considered by the Board's Extramural Programs Subcommittee and noted and concurred with by the Board of Regents.

MEETING OPEN--MAY 29, 9:00 A.M. TO ADJOURNMENT

XV. PLAN FOR HIGH PERFORMANCE COMPUTING AND COMMUNICATIONS

Dr. Daniel R. Masys, Director of NLM's Lister Hill National Center for Biomedical Communication, briefed the Regents on current NLM activities related to the High Performance Computing and Communications Initiative and showed a videotape on HPCC prepared by the Lister Hill Center for use at a White House press conference. Although the Board has previously received reports about the HPCC, this is the first year that NLM has received new funding (\$3.2 million) earmarked for HPCC-related projects. Among these projects are: (1) a "medical- connections" program (in collaboration with the National Science Foundation) to help connect medical centers to the INTERNET and to support regional demonstration projects; (2) the digitization of images such as clinical x-rays (the DXPnet project with the National Center for Health Statistics was described at the last Board meeting); the Visible Human project (also previously reported); and the Unified Medical Language System.

Dr. Robert E. Kahn commented that there is confusion about the National Research and Education Network (NREN)--is it a procurement? A project? A program? People talk about the HPCC more from the computing point of view than the communications point of view. In fact, the communications aspect of the HPCC will be extremely important to the NLM. The success of the Visible Human and the digital radiology projects will be largely dependent on the communications component. Dr. Kahn said it would be useful to have a clear statement of what NIH and NLM believe to be the grand challenges for HPCC in biomedicine, focusing on both medical practice and research. Such a statement would be useful to NLM and NIH in the quest for higher levels of funding for HPCC. Dr. Mary Clutter commented on the need for more partnerships (such as the current NLM/NSF partnership on connections). She said that a directory of biomedical e-mail news groups and forums would be tremendously useful and suggested this might also be a good area of NLM/NSF collaboration. Dr. Lindberg responded that such a need has also occurred to him and that a collaborative undertaking in this area might be feasible.

XVI. INTERLIBRARY LOAN SERVICE TO FEDERAL LIBRARIES

Mrs. Lois Ann Colaianni, Associate Director for Library Operations, set the stage for a discussion of loan service to Federal libraries by describing NLM's overall lending operation. Lending within the U.S. takes place primarily within the framework of the 3,500-member National Network of Libraries of Medicine (NN/LM), for which NLM serves as the backstop. Last year 2,115,129 interlibrary loan requests were made within the network via the electronic document requesting and routing system, DOCLINE. The successful operation of the Network requires a high degree of cooperation among members. This is reflected in statistics

that show that Network libraries filled 86% of the requests; only 11% were routed to NLM. Last year, NLM received 281,000 (and filled 207,000) interlibrary loan requests, including foreign and domestic. Some 70,000 requests were from libraries in HHS (29%), the Defense Department (24%), the Department of Veterans Affairs (27%), and other Federal agencies (20%). This number is increasing. For the 2,300 institutions that accounted for the loans NLM filled, the average number of requests for each library was 90; the average for each of the 445 Federal libraries was 158. Mrs. Colaianni briefly described the borrowing patterns of the VA and DOD libraries, which have their own networks. She showed slides listing the heaviest borrowing libraries and the most frequently requested journal titles. NLM views itself as a backup resource and as such should not be filling requests for commonly held journals. Among the titles being requested by Federal libraries many were widely available in the Network. As long as Federal libraries receive interlibrary loan service from NLM without charge, she said, there is no economic incentive for them to subscribe to journals their patrons need, or to use the NN/LM's resources. It costs NLM \$8.02 to fill an interlibrary loan. The current charge by NLM is \$8 for each filled domestic interlibrary loan. This figure includes the costs to locate and retrieve the item, photocopy and reshelve it, send it to the requester, and administer the program (about \$4 is paid to contract staff to pull, photocopy, and reshelve the item). NLM is spending \$563,742 of its resources to provide interlibrary loan service to Federal libraries. Mrs. Colaianni said that NLM was presenting two recommendations for the Regents to consider: (1) NLM should begin to charge Federal libraries for interlibrary loan service; and (2) NLM should encourage Federal libraries to use local resources before sending requests to the Library. A corollary of the second recommendation is that Federal libraries share their resources by putting their holdings into the DOCLINE system and agreeing to fill requests routed to them, at least those from other Federal libraries.

Following Mrs. Colaianni's presentation, Ms. Wendy Carter, Board representative from the Department of Veterans Affairs, agreed that inappropriate lending practices among Federal libraries should be curbed, but she said that simply shifting the charges from one Federal library to another was not a good idea. She pointed out that only one percent of all interlibrary loan requests from VA institutions ended up at NLM. VA libraries in fact lend more to non-VA libraries than they borrow. She suggested that DC-area Federal libraries might meet to discuss individual library needs and collection strengths, and to get their holdings into DOCLINE. If charges are to be instituted by NLM, however, she urged that the timing is crucial--most libraries have already submitted their FY 1993 budget requests. Ms. Carter next read a letter from Mr. Joseph Howard, Director of the National Agricultural Library, who was unable to attend today's meeting. Mr. Howard also expressed his opposition to NLM's instituting interlibrary loan fees for Federal libraries. He suggested that the matter be referred for discussion to the Federal Library and Information Center Committee before any action is taken. Mr. Howard said that NLM might consider soliciting donations from the heaviest Federal borrowers as a way to support continued free service for smaller Federal libraries. Dr. Richard E. Rowberg, representing the Library of Congress, agreed with the points made by Ms. Carter. He suggested that NLM approach individual libraries about curbing inappropriate practices. Dr. James A. Zimble, President of the Uniformed Services University of the Health Sciences, agreed with the previous two respondents and asked that the Federal libraries work together to arrive at solutions to the problems raised by NLM. Ms.

Rachael Anderson noted that a reciprocal system like the interlibrary loan network requires all members to be responsible. From her experience she said that the imposition of fees is the only restraining element that would be effective. The Board of Regents has the responsibility to consider first the effects of the current system on the operations of NLM. Dr. H. Kenneth Walker suggested that the Board agree in principle to the propriety of charging Federal libraries for interlibrary loan, but postpone any imposition of fees until after a working group of interested parties assembled by NLM has considered how the policy should be implemented so as to minimize the burden on Federal libraries. After discussion, this was put as a motion and unanimously approved.

XVII. LONG-RANGE TOXICOLOGY PLANNING PANEL STATUS REPORT

Dr. Elliot R. Siegel introduced the subject of long-range planning in toxicology, a topic that has been previously reported to the Board. The planning panel has held three meetings; a final report is now being readied and will be presented to the Board for its approval in the fall. Dr. Siegel said that there would be several recommendations dealing with information infrastructure in the area of toxicology and the environment, including a new advisory group that would reflect the concerns of NLM's user community. There will also be a discussion in the report of the need for more NLM statutory authority in this area.

Following Dr. Siegel's remarks, Dr. Henry Kissman, NLM Associate Director for Specialized Information Services, previewed the content of the still-evolving report. Three goals are enunciated: (1) supporting environmental health research and practice with information services; (2) risk assessment in health and related areas; and (3) "molecular toxicology." Dr. Kissman said that in addition to improving the infrastructure, mentioned by Dr. Siegel, there were two other major divisions in the report: providing information resources and improving access to information resources. The panel called for NLM to identify and evaluate user needs, to develop resources and services to fill these needs, and then to evaluate the effectiveness of the programs developed. Traditional library services should be reexamined: NLM's scope and coverage policies, interlibrary loan mechanisms, existing thesauri, and indexing practices should all be reviewed for their adequacy in the area of toxicology and the environment. NLM's present array of toxicology-related factual, bibliographic, and numeric databases requires substantial knowledge by users to be used effectively. The report calls for NLM to take steps to integrate current and future information toxicology services into a single system that would require less training and knowledge by users. Quality control received much attention from the panel, Dr. Kissman said, and the advisors recommended that a set of standardized quality-control indicators be developed and applied. Because international organizations were represented on the panel, emphasis was placed on the increasing availability of international, regional, and other non-U.S. sources of information. NLM should also improve user access to available information, including building an online directory of databases and other information resources offered by NLM and others. Special categories of users were identified: those responsible for emergency response, underserved populations (one program in this area was described by Dr. Lewis earlier in this meeting), and the lay public.

as a Board representative, commented that the meetings were lively and fruitful. She is optimistic that the report the Board will receive will provide well-thought-out goals and directions. Dr. Kathleen McCormick emphasized the high priority of several areas addressed by the panel--those dealing with the evaluation of user needs, the need for quality indicators, and facilitating user access.

XVIII. LISTER HILL CENTER BOARD OF SCIENTIFIC COUNSELORS

Dr. James J. Cimino, Chairman of the LHC Board of Scientific Counselors (BOSC), briefly reported on the six LHC programs reviewed by the Board in the past year. The first, the full-text retrieval program (IRX) for the online reference works in medicine project, will include the AHCPR guidelines when those are available. The Board was complimentary of both the program and the new CD-ROM laboratory that has been developed to assist in its work. The Board felt the need for more information about plans for the IRX-2, however. The second project reviewed, the MedIndex expert system for indexing medical literature, is making good progress and is directly relevant to the future needs of the NLM. The Board made several recommendations about staffing the project. The Diagnostic Radiology X-ray Prototype Network (DXPnet), the third project, is well on its way to achieving its immediate goals, Dr. Cimino said. The Board recommended that there be collaboration between DXPnet and other areas of the NLM concerned with information retrieval and multimedia databases. The Visible Human project (presented at earlier Regents meetings) was also reviewed; the BOSC believes that it is well started but that it would benefit from wide publicity outside the medical community. The fifth program reviewed, the Machine Learning Project, includes research into the cognitive processes of scientific discovery. The Board was pleased with progress of the Machine Learning Project, especially that it is attacking real world problems, and the advisors believe that it is the most cost-effective of all the LHC programs reviewed recently. The Board had two recommendations about this project: It would like to see NLM develop a policy that would permit the Audio Knowledge Acquisition Tool (an early product of the program) to be disseminated to the community, and it would like to see the principle investigator and the NIH pursue a competitive performance evaluation for machine-learning technology that could be applied to a biomedical research question. Lastly, the Board reviewed the Lister Hill Center leadership and termed it "outstanding." It was impressed with the growth in quality and professionalism of the staff and products, and complimented Dr. Daniel Masys on the link he has forged between the NLM Long-Range Plan and the Center's programs. The Board of Scientific Counselors did make several recommendations: outreach should be increased to spread awareness of the Center's research activities; there should be better collaboration and use of common resources; intermediate and final milestones sometimes need to be made more explicit; a vision for the "virtual library" (including full-text retrieval) should be articulated; collaborative work over networks should be encouraged; and there is a need for closer collaboration between intramural projects and the extramural work being done on the Unified Medical Language System.

XIX. NOMINATION AND ELECTION OF NEW CHAIRMAN

Dr. James Zimble, who chaired the committee to nominate a Board chairman, placed in nomination the name of Dr. Lawrence H. Cohn. Dr. Cohn was elected unanimously.

XX. REGIONAL MEDICAL PROGRAMS VIDEOTAPE

"Somehow, Someway, Sometime: The Regional Medical Programs," a videotape produced by the Library in conjunction with last December's conference on the Regional Medical Programs, was shown to the Board.

XXI. ADJOURNMENT

The meeting was adjourned at 12:15 p.m., Friday May 29.

.....
Subcommittee Meeting on Wednesday, May 27:
Extramural Programs Subcommittee--2:00-3:15 P.M.
(Attachment B)
.....

ACTIONS TAKEN BY THE BOARD OF REGENTS

1. The Board concurred in principle with the proposed changes to the Integrated Advanced Information Management Program.
2. The Board agreed in principle to charge Federal libraries for interlibrary loans, but to postpone the imposition of fees until after further study by a working group.
3. The Board concurred with the recommendations of the Extramural Programs Subcommittee. Grant applications recommended for further consideration 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. 7/2/92
Executive Secretary (Date)

Ruth M. Davis, Ph.D. 8/12/92
Chair (Date)

ATTACHMENT "A"

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ATTACHMENT "B"

**BOARD OF REGENTS
EXTRAMURAL PROGRAMS SUBCOMMITTEE MEETING**

May 27, 1992

2:00 to 3:15 p.m.

ATTENDEES

Subcommittee Members Present:

Ms. Rachael K. Anderson, Chair
Ms. Beverly E. Allen
Dr. Ruth M. Davis
Dr. Kathleen A. McCormick
Dr. H. Kenneth Walker

Subcommittee Member Absent:

Ms. Wendy Carter

NLM Staff Present:

Dr. Milton Corn, Acting Associate Director, EP
Mr. Brian R. Campbell, Grants Management Officer/Administrative Officer, 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
Mrs. Rose Marie Holston, Program Analyst, EP
Mrs. Frances Johnson, Program Officer, EP
Ms. Ellen Meltzer, Grants Management Specialist, EP
Mr. Richard T. West, Chief, Office of Program Planning and Evaluation, EP =

APPLICATIONS APPROVED BY COUNCIL
 (ARRANGED NUMERICALLY BY PROGRAM)
 PROG. CLASS: MAY 1992
 COUNCIL DATE: MAY 1992
 INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
1 007 LM05378-01A1	ARKANSAS DELTA MEDICAL INFORMATION EXCHANGE	01A1 112,393
1 007 LM05403-01	NEOMEDNET-THE MEDICAL INFORMATION CONNECTION FOR NEUCOM	01 145,161
1 007 LM05421-01	WESTERN MONTANA MEDICAL LIBRARIES ACCESS NETWORK	01 123,884
1 007 LM05447-01	NORTHWEST OKLAHOMA AHEC MED-FAX NETWORK	01 11,948 02 126,616
1 007 LM05454-01	MEDICAL LIBRARY INFORMATION NETWORK OF KANSAS (MED-LINK)	01 102,156

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APPLICATIONS APPROVED BY COUNCIL - DUAL REVIEW
 (ARRANGED NUMERICALLY)
 COUNCIL DATE: MAY 1992
 INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE
 PROG. CLASS:

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
1 R43 CA58119-01	DUALS SECONDARY REVIEW: LM DATABASE SYSTEM FOR LOCAL LEGISLATIVE TRACKING	01 26,790
1 R43 HD29660-01	DUALS SECONDARY REVIEW: LM COMPUTER SOFTWARE FOR SEXUAL EDUCATION OF ADOLESCENTS	01 31,578
1 R43 NR03157-01	DUALS SECONDARY REVIEW: LM BORN IN THE USA	01 37,683

APPLICATIONS APPROVED BY COUNCIL - DUAL REVIEW
 (ARRANGED NUMERICALLY)
 PROG. CLASS: MAY 1992
 INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE
 COUNCIL DATE: MAY 1992

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
1 R01 HG00648-01	DUALS SECONDARY REVIEW: LM GENOMIC DATABASE FOR THE YEAST SACCHAROMYCES	01 228,184 02 197,512 03 206,371
1 R01 HS07323-01	DUALS SECONDARY REVIEW: LM SEVERITY MODELING USING LANGUAGE PROCESSING	01 183,076 02 188,462 03 190,368

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

COUNCIL DATE: MAY 1992

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
2 008 LM05160-03	MACHINE-READABLE CATALOGING OF MEDICAL ARTIFACTS	03 125,503
1 008 LM05292-01A1	HEALTH CARE INFORMATION ACCESS, CONSORTIUM MODEL	01A1 149,346 02 71,350
1 008 LM05434-01	THE SALS ENHANCEMENT PROJECT	01 179,013 02 39,005
1 008 LM05443-01	FAST TRACK PROVISION OF IAIMS	01 209,412 02 208,400
1 008 LM05449-01	PROVIDING CLINICAL INFORMATION OF HOSPITAL WARDS	01 150,000 02 181,010

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
2 R01 LM04174-07	A CANCER RADIOTHERAPY EXPERT SYSTEM USING SIMULATION	07 162,849 08 163,859 09 170,413
2 R01 LM04605-06	RETRIEVAL FROM FULL-TEXT MEDICAL DATABASES	06 108,512 07 99,479 08 104,413 09 109,884
2 R01 LM04836-04A1	FACS-PENGUIN: KNOWLEDGE BASE SUPPORT FOR FLOW CYTOMETRY	04A1 283,989 05 286,812 06 298,286
2 R01 LM05110-04	DUALS SECONDARY REVIEW: HG SOFTWARE FOR ANALYZING BIOSEQUENCE DATA	04 193,764 05 170,305 06 177,106 07 184,181
1 R01 LM05444-01	DUALS SECONDARY REVIEW: NS THE PRACTICE OF NEUROLOGY IN AMERICA, 1863-1945	01 24,990
1 R01 LM05445-01	VITAL SIGNS--TOWARD A NEW MODEL OF MEDICAL WRITING	01 15,118
1 R01 LM05465-01	COMPUTER SUPPORT FOR PROBLEM-BASED LEARNING	01 155,354 02 14,527 03 102,313

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

COUNCIL DATE: MAY 1992

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
1 R43 LM05353-01A1	NEURAL NET AND CELLULAR AUTOMATA EXTENSIONS TO MLAB	01A1 37,257
1 R43 LM05457-01	PILOT SITE STUDY OF A JOURNAL ARTICLE MANAGEMENT SYSTEM	01 40,621
1 R43 LM05458-01	NATURAL LANGUAGE RETRIEVAL FOR MEDICAL TEXTS	01 28,084
1 R43 LM05460-01	ALGORITHMS FOR TEXT CD-ROM COLLECTIONS FOR HYPERTEXT	01 34,483
1 R43 LM05461-01	COMPILING AND DOCUMENTING THE CPS ON COMPACT DISK	01 22,796
1 R43 LM05464-01	EMBRYOLOGY: A COMPUTER-AIDED AND ANIMATED INSTRUCTION	01 50,000

APPLICATIONS APPROVED BY COUNCIL
(ARRANGED NUMERICALLY BY PROGRAM) COUNCIL DATE: MAY 1992
PROG. CLASS:

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED	
2 R44 LM05222-02	SOFTWARE FOR PREDICTION OF MACROMOLECULE INTERACTION	02	118,046
		03	96,746

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

A G E N D A

101st Meeting of the

BOARD OF REGENTS

9:00 a.m., October 1-2, 1992

Board Room
Mezzanine of
National Library of Medicine

MEETING OPEN: 9:00 a.m. to 4:30 p.m. on October 1 and from 9:00 a.m. to adjournment
on October 2.

MEETING CLOSED: 4:30 to 5:00 p.m. on October 1 for the review of grant applications.

1. CALL TO ORDER AND INTRODUCTORY REMARKS Dr. Lawrence H. Cohn
2. REMARKS BY THE ASSISTANT SECRETARY FOR HEALTH Dr. James O. Mason
3. REMARKS BY THE DEPUTY SURGEON GENERAL, PHS Dr. Robert Whitney
4. REMARKS BY THE DEPUTY DIRECTOR FOR INTRAMURAL RESEARCH, NIH Dr. Lance A. Liotta

COFFEE BREAK

5. CONSIDERATION OF MAY MINUTES TAB I
(Agenda Book) Dr. Lawrence H. Cohn
6. FUTURE MEETING DATES Dr. Lawrence H. Cohn

Winter Meeting: Jan. 28-29, 1993 (Th-F)--CONFIRMED
Spring Meeting: May 26-27, 1993 (W-Th)--CONFIRMED
Fall Meeting: Sept. 30-Oct. 1, 1993 (Th-F)--PROPOSED

(Subcommittees meet, when necessary, the day before the full Board.)
(On Sept. 30: Extramural Programs Subcommittee--2:00-3:30 p.m.,
Pricing Subcommittee--3:00-4:00 p.m.,
Planning Subcommittee--4:00-5:00 p.m.)

PLEASE NOTE:

(Potential conflicts with Fall 1993 dates.) Federal Library and Information
Center Committee Quarterly Meeting,
Sept. 23, 1993
Rosh Hashanah, Sept. 16-17, 1993
Yom Kippur, Sept. 24, 1993

7. REMARKS BY THE DIRECTOR, NLM TAB II Dr. Donald A.B. Lindberg

Discussion Board Members

8. NIH STRATEGIC PLAN TAB III Dr. Donald A. B. Lindberg

Discussion Dr. H. Kenneth Walker
Other Board Members

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

9. NLM POLICY ON DATABASE PRICING TAB IV Mr. Kent A. Smith
(Board action necessary.)

Discussion Dr. Lawrence J. DeNardis
Dr. Lois E. DeBakey
Other Board Members

10. REGENTS' AWARD FOR SCHOLARSHIP OR TECHNICAL ACHIEVEMENT Dr. Lawrence H. Cohn

11. AI/RHEUM EXPERT SYSTEM REPORT TAB V Dr. Lawrence Kingsland

Discussion Dr. H. Kenneth Walker
Dr. James A. Zimble
Other Board Members

COFFEE BREAK

12. COLUMBIA-PRESBYTERIAN MEDICAL CENTER'S IAIMS--DEMONSTRATION TAB VI Dr. Paul Clayton

Discussion Ms. Rachael K. Anderson
Other Board Members

13. REPORT FROM EXTRAMURAL PROGRAMS TAB VII Dr. Milton Corn

a. Budget and Funding Plans Tab A

b. Medical Informatics Program--
An Overview Tab B

c. IAIMS Announcement Tab C

d. IAIMS/HPCC Programs TAB D

e. Resource Grants Announcement Tab E

f. Fellowship in Applied Informatics
Announcement TAB F

Discussion Ms. Rachael K. Anderson
EP Subcommittee Members
Other Board Members

MEETING CLOSED FOR THE REVIEW OF GRANT APPLICATIONS, October 1, 4:30 P.M.

14. REVIEW OF GRANT APPLICATIONS

Dr. Roger W. Dahlen

(Conflict-of-interest instructions in front of workbook for your information and review.)

RESEARCH TAB I

A. Medical Informatics Tab A

B. Biotechnology Tab B

C. Library and Information Science Tab C

RESOURCE TAB II

A. Information Systems Tab A

B. Information Access Tab B

C. IAIMS Tab C

SPECIAL SCIENTIFIC PROJECTS TAB III

PUBLICATION APPLICATIONS TAB IV

SUMMARY LIST OF APPLICATIONS NOT RECOMMENDED FOR FURTHER CONSIDERATION TAB V

INTERIM ACTIONS TAB VI

R E C E S S * * * * *

Dinner. Bethesda Naval Officers' Club
Cocktails. 6:30 p.m. Bethesda, Maryland
Dinner. 7:30 p.m. "Bridge Room"

SPEAKER: Dr. Victor Reiss, Director of Defense Research and Engineering, Department of Defense.

TITLE: "Computer-Simulated Desert Storm Battle."

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R E C O N V E N E: Friday, 9:00 A.M., Board Room

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|-----|--|-----------------|--|
| 15. | GENBANK PROJECT AND NCBI ISSUES | <u>TAB VIII</u> | Dr. David J. Lipman |
| | Discussion | | Dr. Mary E. Clutter
Other Board Members |
| 16. | REVIEW OF 1990/1991 GRATEFUL MED
OUTREACH AWARDS | <u>TAB IX</u> | Dr. Angela Ruffin |
| | Discussion | | Ms. Wendy Carter
Other Board Members |
| | COFFEE BREAK | | |
| 17. | PLANNING PANEL REPORT: TOXICOLOGY
AND ENVIRONMENTAL HEALTH
(Board action necessary.) | <u>TAB X</u> | Dr. Elliot Siegel
Dr. Edward N. Brandt, Jr. |
| | Discussion | | Ms. Beverly Allen
Other Board Members |
| 18. | COLLECTION DEVELOPMENT MANUAL
(Board action necessary.) | <u>TAB XI</u> | Ms. Duane W. Arenales |
| | Discussion | | Ms. Rachael K. Anderson
Other Board Members |
| 19. | MEDINFO '92 | <u>TAB XII</u> | Ms. Betsy Humphreys |
| | Comments | | NLM Attendees |
| 20. | HISTORY OF THE U.S. PUBLIC
HEALTH SERVICE VIDEOTAPE | | Dr. Daniel R. Masys |
| 21. | ADJOURNMENT | | Dr. Lawrence H. Cohn |

DEPARTMENT OF HEALTH AND HUMAN SERVICES

NATIONAL INSTITUTES OF HEALTH

NATIONAL LIBRARY OF MEDICINE

BOARD OF REGENTS

MINUTES OF THE 101ST MEETING

OCTOBER 1-2, 1992

BOARD ROOM

NATIONAL LIBRARY OF MEDICINE

BETHESDA, MARYLAND

**DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE**

THE BOARD OF REGENTS OF THE NATIONAL LIBRARY OF MEDICINE

**Minutes of Meeting 1/2/
October 1-2, 1992**

The Board of Regents of the National Library of Medicine was convened for its one-hundred-and-first meeting at 9:00 a.m. on Thursday, October 1, 1992, in the Board Room of the National Library of Medicine, Bethesda, Maryland. Dr. Lawrence H. Cohn, Chief of Cardiac Surgery at Brigham and Women's Hospital, chaired the meeting. In accordance with P.L. 92-463 and the Determination of the Director, NIH, as announced in the Federal Register on September 10, 1992, the meeting was open to the public from 9:00 a.m. to 4:30 p.m. on October 1 and from 9:00 a.m. to 12:15 p.m. on October 2. The meeting was closed from 4:30 to 4:45 p.m. on October 1 for the review, discussion, and evaluation of grant applications. A Board roster is enclosed under Attachment A.

Board members present were:

Dr. Lawrence H. Cohn, Chair	Mr. Joseph H. Howard
Ms. Beverly E. Allen	Dr. Robert E. Kahn
Ms. Rachael K. Anderson	Dr. Carol M. Newton
Ms. Naomi C. Booker	Dr. H. Kenneth Walker
Dr. Mary E. Clutter	Dr. James A. Zimble
Dr. Lawrence J. DeNardis	

Alternates to ex officio members present were:

Ms. Wendy Carter, representing Dr. James W. Holsinger, Jr.
Col. Emmanuel Cassimatis, representing Lt. Gen. Alcide M. LaNoue
Capt. David G. Kemp, representing Vice Adm. Donald F. Hagen.
Capt. Kathleen A. McCormick, representing Dr. Antonia C. Novello.
Col. Jacqueline Morgan, representing Lt. Gen. Alexander M. Sloan.
Dr. Richard E. Rowberg, representing Dr. James H. Billington.

Unable to attend:

Dr. Robert J. Joynt
Dr. Jeanne Spurlock

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

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

National Library of Medicine staff members attending this meeting included:

Dr. Donald A. B. Lindberg, Director
Mr. Kent A. Smith, Deputy Director
Dr. Michael Ackerman, Acting Associate Director, SIS
Ms. Duane W. Arenales, Chief, Technical Services Division, LO
Mr. Harry Bennett, Acting Director, OCCS
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
Dr. Richard K. C. Hsieh, Director for International Programs
Ms. Betsy Humphreys, Deputy Associate Director, LO
Mr. Charles R. Kalina, Special Projects Officer, OD
Dr. Lawrence C. Kingsland III, Chief, Computer Science Branch, LHNCBC
Mr. Sheldon Kotzin, Chief, Bibliographic Services Division, LO
Ms. Eve Marie Lacroix, Chief, Public Services Division, LO
Ms. Susan Levine, Chief, Office of Financial Management, OD
Dr. David J. Lipman, Director, National Center for Biotech Info.
Ms. Becky Lyon-Hartman, Head, National Network Office, LO
Mr. James S. Main, Chief, Audiovisual Program Development Branch, LHNCBC
Dr. Daniel R. Masys, Director, Lister Hill National Center for Biomedical Communications
Mr. Robert B. Mehnert, Chief, Office of Inquiries and Publications Management, OD
Mr. David Nash, EO Officer
Dr. Angela Ruffin, Outreach Librarian, NN/NLM Network Office, LO
Ms. Peri L. Schuyler, Head, Medical Subject Headings Section, LO
Dr. Elliot R. Siegel, Associate Director, Health Information Programs Development
Dr. Sidney Siegel, Chief, Office of Hazardous Substances Information, SIS
Dr. Melvin L. Spann, Chief, Biomedical Information Services Branch, SIS
Mr. Richard T. West, Chief, Office of Program Planning and Evaluation, EP

Others present included:

Dr. James O. Mason, Assistant Secretary for Health
Dr. Robert Whitney, Deputy Surgeon General, PHS
Dr. Lance A. Liotta, Deputy Director for Intramural Research, NIH
Dr. Edward N. Brandt Jr., Professor and Co-Director, Center for Health Policies,
University of Oklahoma
Dr. Paul D. Clayton, Director, Center for Medical Information Science,
Columbia-Presbyterian Medical Center
Col. John Silva, Professor, Department of Surgery, USUHS
Dr. Henry M. Kissman, Consultant, Toxicology Information Program

I. OPENING REMARKS

Dr. Lawrence H. Cohn, Chairman, welcomed the Regents and guests to the 101st meeting of the Board of Regents of the National Library of Medicine. He introduced three new Regents: Ms. Naomi C. Booker, Dr. Robert J. Joynt, and Dr. Carol M. Newton. Dr. Joynt was unable to attend this meeting. He also welcomed Col. Emmanuel G. Cassimatis, U.S. Army, who was attending for Army Surgeon General Alcide M. LaNoue. Dr. Cohn noted several new Board subcommittee assignments: Dr. James A. Zimble to the Planning Subcommittee, Dr. Carol M. Newton to the R&D Subcommittee, Ms. Naomi C. Booker and Col. Jacqueline Morgan to the Pricing Subcommittee, and Dr. Robert J. Joynt to the Extramural Programs Subcommittee.

II. REMARKS BY THE HHS ASSISTANT SECRETARY FOR HEALTH

Dr. James O. Mason, Assistant Secretary for Health, noted with approval the appointment by the White House of NLM Director Lindberg as head of the National Coordination Office for High-Performance Computing and Communications(HPCC). He and Secretary Sullivan both support the HPCC and NLM's important role in the biomedical aspects of the initiative. Dr. Mason said that there is a new agency within the Public Health Service, the Substance Abuse and Mental Health Services Administration. Its role is in substance abuse treatment and prevention and mental health services. Research responsibilities in these areas have been moved to the National Institutes of Health in the form of the National Institute of Mental Health, the National Institute of Drug Abuse, and the National Institute on Alcohol Abuse and Alcoholism. He said he wanted to set the record straight about recent criticism in the media about the Department's violence initiative. NIH's National Center for Human Genome Research funded a carefully peer-reviewed grant to the University of Maryland for scientists and scholars to attend a conference to discuss whether or not there is a genetic basis for crime. Unfortunately, the language used to describe the intent of the conference in a brochure put out by the University gave the distinct impression that science has proven that there is a genetic basis for crime. NIH froze the funds for the conference and requested that the school restructure the brochure and the conference. Because this was not done, funding was cut off. Dr. Mason fully supports NIH's action. Unfortunately, there have been continuing inflammatory comments in the press by some who have accused the Department of having a violence initiative that is racist in nature. The Department's position has been strongly supported by the American Psychiatric Association and an APA subgroup of black psychiatrists.

III. REMARKS BY THE DEPUTY SURGEON GENERAL

Dr. Robert Whitney, Deputy Surgeon General of the Public Health Service, described the recent heavy involvement of the PHS in providing emergency medical relief through its DMAT (Disaster Medical Assistance Teams) in connection with Hurricane Andrew.

Dr. Frank Young is the senior PHS official on the scene there. Dr. Whitney noted that the Surgeon General has just convened a conference on Hispanic health issues. There was a general consensus on the needs of that community, and regional meetings will over the next month or so solidify the proposed initiatives coming out of the conference.

IV. REMARKS BY THE NIH DEPUTY DIRECTOR FOR INTRAMURAL RESEARCH

Dr. Lance A. Liotta, the new NIH Deputy Director for Intramural Research, introduced himself to the Board and said that there were four elements that make up NIH's unique intramural research activity: a critical mass of scientists conducting creative fundamental research, innovative clinical research rapidly translating basic discovery to the patient bedside, mentorship to inspire scientific leaders of the future, and partnership with extramural scientists. The NIH strategic plan supports these elements. Dr. Liotta said that his career as an intramural scientist is typical of many who were spawned and nurtured in the NIH intramural program; more than 50,000 scientists, including 11 Nobel prizewinners, have worked at NIH. He briefly described his educational background and the research he has conducted over the years in cancer research. Although NIH's intramural research program is the most productive and prestigious in the world, there are areas for improvement, such as the need to refurbish NIH's aging infrastructure. He said that the intramural office is sponsoring several new programs: a revised postdoctoral fellowship program; a strengthened recruitment, retention, and promotion program for minority and women scientists; an outreach program to high school science students; an annual NIH research day festival; a proposed intramural research newsletter; and NIH faculty senates in specialty areas to provide counsel for the Office of the Director. The most pressing problem, Dr. Liotta said, is the hiring of scientists--the hiring freeze and low salary structure inhibit our ability to recruit and keep scientists.

V. CONSIDERATION OF MINUTES OF PREVIOUS MEETING

The Regents approved with one correction the minutes of the May 28-29, 1992, meeting. As follows: At the beginning of page 14 the following part of the sentence was cut off: "Following Dr. Kissman's presentation, Ms. Beverly Allen, who attended the panel meetings..."

VI. DATES OF FUTURE MEETINGS

The Board will meet next on February 11-12, 1993 (Note: this is a new date, changed subsequent to the present meeting). The spring 1993 meeting was confirmed for May 26-27. The meeting for next fall was set for September 30-October 1, 1993.

VII. REPORT FROM THE NLM DIRECTOR

Dr. Lindberg reported briefly on his appointment as head of the coordination office of the High-Performance Computing and Communications Initiative (HPCC). He introduced several staff who would be helping him in his HPCC capacity: Patricia Carson, Dr. Sally Howe, Calvin Ramos, and Charles Kalina. He also introduced his new secretary, Nancy Yellin. New NLM professional staff appointments include Dr. Michael Ackerman, Acting Associate Director for Specialized Information Services, Karen Ginter, head of MEDLARS promotion, and Dr. Rick Rogers, who is a member of the Lister Hill Center staff working on the Unified Medical Language System. He noted that the Library was sorry to lose its chief of the History of Medicine Division, Dr. John Parascandola, who has been appointed Public Health Service Historian. In the area of legislation, Dr. Lindberg reported that reauthorization of the Medical Library Assistance Act and the National Center for Biotechnology Information were dependent on the NIH reauthorization bill that was vetoed by the President. It is possible that compromise legislation will be passed. In July, Senator Gore introduced S.2937, the "Information Infrastructure and Technology Act of 1992." This legislation would expand the 1991 HPCC legislation with a focus on (and funding authorization for) applications for education, libraries, manufacturing, and health care. The Director reported briefly on the state of the 1993 NLM budget. The President's request was for \$108,662,000 (including \$4 million from National Institute of General Medical Sciences) to operate GenBank and \$753,000 earmarked for NLM's HPCC program). As was noted earlier, the HHS appropriations bill as sent to the President was vetoed. [Note: since the Board meeting, an appropriation was passed and signed into law.]

Dr. Lindberg reported on several other matters. He is pleased that a compromise agreement was worked out between NLM and Federal libraries on the question of charging for interlibrary loans. This subject was discussed at the last meeting of the Board of Regents. The compromise involves more sharing of resources by other Federal libraries, NLM levying a charge to heavy users of \$4 for each request in excess of 1,000, and Federal libraries that do not participate in DOCLINE (and that use NLM as a first rather than a backup resource) paying \$4 for each loan filled by NLM. On another matter, the Director recommended that the Regents read the *Science* article (July 10, 1992) about the contretemps between NLM's National Center for Biotechnology Information and the private sector. The article was in the background material provided to the Regents. Dr. Lipman briefly described a group made up of representatives of NCBI and industry that would meet regularly to discuss matters of mutual concern. Also in the material provided to the Board is the new fact sheet, "Opportunities for Training and Education at the National Library of Medicine." The last item reported by Dr. Lindberg is the upcoming two-part nationwide satellite television broadcast, "Information STAT: Rx for Hospital Quality." The broadcast, sponsored by NLM and to be aired on October 22 and November 5, will address the critical role that information services can play in improving hospital quality. Following Dr. Lindberg's presentation, Ms. Rachael Anderson asked about a current concern of medical librarians that the FDA was prohibiting the importation of supplements to certain scientific journals into the United States because pharmaceutical companies sponsor their

publication. This has given rise to accusations of FDA censorship. The Director read to the Regents part of an FDA reply that there is no embargo and that libraries are free to obtain and use journal supplements from any source. Decisions to restrict dissemination of supplements are made by the distributors of the supplements and do not reflect any FDA embargo.

VIII. NIH STRATEGIC PLAN

Dr. Lindberg briefly recounted the NIH long-range planning process, previously reported to the Board. Dr. H. Kenneth Walker, who represented the Regents in the planning, said that he attended a brief meeting at NIH this summer at which a modest, noncontroversial report about planning was delivered. His perception is that the voiced objections of extramural scientists have resulted in a changed planning process, the details of which are not yet apparent. Dr. Lindberg commented that many extramural scientists do not want the status quo altered, except that they do support big-ticket "infrastructure" resources--accelerators, networks, large computers, etc.

IX. POLICY ON DATABASE PRICING

Mr. Kent A. Smith, NLM Deputy Director, described the Library as a "lightning rod" for discussion (and controversy) on the subject of the pricing of Federal databases. Because of the powerful tradition in the U.S. of "free" library services, NLM has to be sensitive in imposing fees for access to its databases. Ironically, NLM has at various times been accused by the information industry of both charging too much and too little. The Library has successfully defended its position because NLM's enabling legislation specifically empowers the Library, with the advice of the Board of Regents, to establish charging policies and to set prices for services. Among the organizations which over the years have been involved with NLM's pricing policies are the Office of Management and Budget, the General Accounting Office, the Office of Technology Assessment, and the various Congressional oversight and appropriations committees. Mr. Smith said that the early 1980s concept of "full-cost recovery" and even market pricing of government information products has been modified in recent years to recovering only the costs of dissemination or the costs of access. The Office of Management and Budget Circular A-130 which articulates this policy is consistent with NLM's practices. OMB has often cited NLM as a prime example of a good cost-recovery program. Congress' Governmental Affairs Committee, however, which is responsible for authoring the "Paperwork Reduction Act," has been critical of NLM's pricing policies; the Committee would prefer the Library to release its database tapes to the private sector with no quality control being exercised by NLM. In response, NLM has reiterated the commitment of the Board of Regents to providing quality assurance for NLM data regardless of the method of delivery. The appropriations committees, on the other hand, have over the years supported the policy of having appropriations cover the costs of creating the database, while access costs are paid by users. These committees have also supported

NLM's efforts to maintain database integrity. The most recent pronouncement (FY 1993) from the House Appropriations Committee, while upholding the policy of shared costs, stated that fees "not be used to restrict access." Access charges should recover only "telecommunications, mail, reproduction, and other related costs." The Senate Appropriations Committee language is somewhat less restrictive.

Mr. Smith said that this is a propitious time for the Library to revise its pricing structure. Lower prices and new communications' modes would result in greater use of the databases and also enhance NLM's Outreach and High-Performance Computing and Communications initiatives. Mr. Smith presented slides showing what costs are currently being recovered (about \$17.5 million per year) and what might be recovered using the House Committee's recent recommendation (an estimated \$7.2 million). How would the \$10 million difference be made up? About \$6 million could come from money that is presently being returned annually to the Treasury Department. Some of the remaining \$4 million could come from a careful analysis (and subsequent reduction) of costs; some might be absorbed within program budgets. The Board Pricing Subcommittee, which met yesterday, reviewed the proposed changes and found them feasible. Mr. Smith briefly reviewed the principal features of the proposed pricing policy. Domestically, online charges would be reduced 40 to 50 percent (the average search would be about \$1.25). Volume discounts would accrue to those who commit to a significant dollar level up front. NLM will continue to explore flat-fee experiments. Those who license NLM data, whether in academia or the commercial sector, will now pay only for the costs of reproduction, shipping, and handling of tapes. There will be no use-fees. International MEDLARS partners will also have the advantage of the reduced cost algorithm, although the foreign surcharge will remain. A new aspect of international access is that individuals in other countries will now be able to have Grateful Med online access to NLM via Internet. NLM will also experiment with flat-rate unlimited usage arrangements with some international partners.

Following Mr. Smith's presentation, Dr. Lawrence DeNardis, who chaired the Pricing Subcommittee meeting, reported that the Board stands by the philosophy that medical information is a public good and should be readily accessible to all. The new pricing system will reduce costs to users; it will be interesting to see if commercial lessees of the MEDLARS data pass the savings on to their customers. The Subcommittee remains firm in its belief that database integrity is a critical issue. Dr. DeNardis read from a letter from Dr. Lois DeBakey, a consultant to the Board, in which she strongly affirms this: "users may consider information that has not been updated and validated to carry the imprimatur of the NLM when it actually does not. As a result, physicians accessing information through such licensees could prescribe inaccurate dosages or otherwise err in the care of their patients. I would therefore urge the Board to reinforce strongly the necessity for NLM to control the currency and accuracy of databases leased by the private sector..." Speaking for the Subcommittee, Dr. DeNardis moved that the Board adopt a resolution: "The Board of Regents concurs with the new pricing structure that is proposed to be implemented by the National Library of Medicine, with the proviso that the licensees of NLM data are held responsible for ensuring their integrity, accuracy, completeness, and currency." The motion

was seconded and, after discussion, passed unanimously. Dr. Robert Kahn commented that there are several options for database access that ought to be discussed in the future. For example, when we solve the problem of intellectual property protection in the networking environment, it will be harder for the NLM to do business in its current form. The Library will probably have to enter into negotiations to make full-text retrieval and other capabilities available. NLM and the Board should be looking at other strategic alternatives for access that meet the needs of the Library (and continues to sustain current mechanisms) and allow it to play a leadership role in the future.

X. BOARD OF REGENTS AWARD

Board Chairman, Dr. Lawrence Cohn, presented the 1992 NLM Board of Regents Award for Scholarship or Technical Achievement to Karen Patrias. Ms. Patrias, a reference librarian in the Public Services Division, received the award for "developing the *National Library of Medicine Recommended Formats for Bibliographic Citation*. This provides biomedical researchers, editors, and information professionals with guidelines for citing both published and unpublished sources that will promote consistent, high-quality bibliographic citation of the biomedical literature."

XI. AI/RHEUM EXPERT SYSTEM

Dr. Lawrence Kingsland, Chief of the Computer Science Branch, Lister Hill Center, reported on progress being made in developing and evaluating the artificial intelligence in the rheumatology (AI/RHEUM) expert consultant system. The concept of AI/RHEUM is to encapsulate the specialty expertise of experienced rheumatologists and make this knowledge available to non-rheumatologist practicing clinicians. It is unusual in that its knowledge is represented in disease criteria tables; it is also multimedia in nature, having not only text, but a still-image bank, motion video segments, and a link to MEDLINE via Grateful Med. The system reasons from any of 649 "findings" or pieces of information that the user presents to it; it has knowledge of 44 rheumatologic diseases. The output is a differential diagnosis at one of three confidence levels: definite, probable, or possible. Using an MS-DOS personal computer, Dr. Kingsland demonstrated the system to the Regents. After the demonstration, he discussed how the system was being validated and evaluated by practicing clinicians in Missouri (family practice) and Utah (internal medicine). The evaluation study was closed at the end of July 1992 and the data are now being evaluated. After the presentation, Dr. H. Kenneth Walker commented that systems of this kind will have great future application in medicine. They will be used not only in clinical practice, but in medical schools, where they will have application as learning tools. The challenge is to make the systems generalizable and allow others to adapt them to other problems. Dr. James Zimble said that there will be a considerable investment required to maintain and nurture such systems, but that they will ultimately be worth the investment. Eventually they may be a factor in reducing medical costs. Dr. McCormick asked how long

it would take to drop new content into the "shell" that has been developed for AI/RHEUM. Dr. Lindberg said that the primary task in this regard is to develop, validate, and maintain the currency of the medical information and that this is a considerable undertaking. Dr. Kahn said that AI/RHEUM is a remarkable example of a knowledge-based system. Again, however, the copyright issue is involved; a key issue will be to find mechanisms to encourage people to share their knowledge of subject areas. Dr. Newton suggested that these systems might eventually be linked to the certification process for continuing medical education. The Chairman asked that a followup report on the AI/RHEUM field test be made to the Board in May 1993.

XII. COLUMBIA-PRESBYTERIAN MEDICAL CENTER IAIMS DEMONSTRATION

Dr. Paul Clayton of Columbia-Presbyterian Medical Center, reported to the Board on the present state of their IAIMS project. The information needs there are staggering, with some 900,000 patient encounters annually. The project (originally led by Rachael Anderson) was to build an Integrated Advanced Information Management System that gave you "one-stop shopping": no matter what you wished to do, you did not have to leave the IAIMS work station. Dr. Clayton demonstrated online a mock-up of their IAIMS using various situational scenarios: the need for occupancy policies, word processing capability, scholarly information systems, clinical information on a specific patient such as current drug prescriptions and laboratory test results, and so forth. Moving from the idealized mock-up system, he showed the menu of the real system that is now being used, including the card catalog online, MEDLINE, the PDR, and five anatomy and neurology textbooks. Sixty percent of the usage is to view laboratory results, but viewing admission and discharge histories is one of the fastest growing categories. Over 80 percent of the attending physicians used the IAIMS system at least once in 1992; more than 1,000 individuals a day access it; more than 100 do a MEDLINE search; more than 100 use the system's e-mail function. Giving a bit of history, Dr. Clayton said that Ms. Anderson wrote the first grant proposal in 1983; Columbia-Presbyterian committed itself to the IAIMS project in 1987; initial network installation took one year, and its various capabilities were phased in after that. Some \$25.5 million has been spent in developing the system, of which NLM's various grant programs constituted about 15 percent. Other sources of funding were companies and foundations. To recoup annual IAIMS costs it is estimated that residents would have to save 36 minutes a day, nurses 2.5 minutes, attending physicians one minute; alternatively, it would require 450 extra admissions (a one-percent reduction in length of stay). Dr. Clayton concluded (1) that the system meets real needs and are used by physicians and others, and (2) it isn't necessary to have huge returns on such a system to make it worth doing (the total \$25 million IAIMS investment was only a third of a percent of the institution's total budget during that time).

Ms. Rachael Anderson commented that of the extant IAIMS projects, the Columbia-Presbyterian IAIMS has the broadest scope. She asked Dr. Clayton what changes were brought about within the institution as a result of the IAIMS. He replied that several new entities were organized as a result: a center for medical informatics, a department of clinical information services, and a new security/confidentiality committee. Surprisingly, he said, analysis showed no difference in IAIMS computer usage as a function of the age of the physicians.

XIII. REPORT FROM EXTRAMURAL PROGRAMS

Budget

Dr. Milton Corn, Acting Associate Director for Extramural Programs, noted that at its May meeting the Board approved changes to the Integrated Advanced Information Management Systems (IAIMS) Program. In response to the August announcement of the revised program, 300 inquiries were received from the community, which showed an unprecedented interest in the program. The funds actually available for IAIMS in 1993, Dr. Corn said, are only \$600,000. Since the first phase of the new two-phase program--the Planning Phase--requires only \$150,000 per grant per year, three to four grants will be funded in FY 1993, if applications are received in time. Four of the present IAIMS programs will run their course during the next two-and-a-half years, so that approximately \$3.0 million will become available.

In the case of the Fellowship Program in Applied Informatics, which supplements NLM's informatics research training program, \$211,000 are available for FY 1993. The average cost per fellow is about \$35,000. If many fellows apply for the Applied Information Fellowships, where NLM agreed to substitute a year's salary up to \$50,000, the number of awards will be even less. Because the Medical Library Assistance Act (MLAA) was not reauthorized, the MLAA budget is flat for FY 1993. The Resource Program is important to the outreach effort, but will have little more than \$200,000 available in FY 1993 because of previous commitments. (The average grant in this category amounts to \$150,000.) In FY 1993 NLM will be carrying seven grants in this category all of which have been approved during the last two years. The other authority under which NLM's extramural programs are funded is the PHS 301 authority, which supports research in medical informatics and biotechnology, and has 1993 funds available of \$1,075 million and \$867,000, respectively. At an average grant of \$200,000 this means that relatively few new grants will be funded in 1993. Although Extramural Programs overall in the last few years has had more money to work with, the increased demands in the medical informatics field require much more than is currently available.

An Analysis of NLM's Informatics Grants

The preliminary results of this analysis showed, Dr. Corn said, a total of \$38.7 million spent for 72 grants over the past ten years--1982 to 1991. Sixty-six Principal Investigators participated, most of whom were one-time grantees. The following types of programs were funded: 40 traditional research projects (RO1), 13 FIRST awards, 12 New-Investigator Research awards (now obsolete), and seven modified Research Career Development Awards (now less common). Approximately three quarters of the money--\$30.5 million--went to traditional research projects, with a median total award of \$496,000, a median project period of 3.3 years, and a yearly median payout of \$136,000. The projects addressed the following fields: cognitive process, human/machine interface, knowledge representation, medical decision-making, knowledge and data acquisition and technology transfer.

A list of the top twenty awardees showed that one individual principal investigator from Massachusetts took sixteen percent of the total budget. Each awardee was contacted during this summer to find out how many grant-related articles were published. In addition, a

Medline search was made, using "Informatics" and the P.I.'s name. Although some P.I.s did not respond, fourteen did, showing as many as 89 publications for one investigator. Most publications credited NLM for support of the research. Dr. Corn noted that he will obtain a more complete publication record.

**MEETING CLOSED FOR THE REVIEW OF GRANT APPLICATIONS
OCTOBER 2, 4:30 TO 4:45 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 applications workbook, and reminded them to sign, at the conclusion of the grant applications review, the statement noting that they had not participated in the discussion of any applications which presented a conflict of interest.

The Board reviewed 30 applications, requesting \$12,373,128 and recommended for further consideration 30 applications in the amount of \$10,336,563 for the total years requested. Grant applications recommended for further consideration by the Board are listed in the summary actions (Attachment E). Interim actions taken by the Board's Extramural Programs staff since the May meeting were considered by the Board's Extramural Programs Subcommittee and noted and concurred with by the Board of Regents.

MEETING OPEN--OCTOBER 2, 9:00 A.M. TO ADJOURNMENT

XV. GENBANK PROJECT AND NCBI ISSUES

Dr. David Lipman, Director of NLM's National Center for Biotechnology Information, reported that since October 1, 1992, NLM has been responsible for the most important database in molecular biology, GenBank. He said that GenBank has been gradually switched from the National Institute of General Medical Sciences (NIGMS) to the NCBI; there has been no abrupt change in services or usage. Using a graph, Dr. Lipman described how data flows from the Los Alamos National Laboratories, EMBL, and a variety of other sources (including NLM itself) to NCBI, and the data description language used (ASN.1). A database that will allow daily tracking of the data is well along in development. The collected files are available for downloading from Internet. An NCBI e-mail server is accessible over Bitnet or Internet that is currently serving 600-700 queries a day. There have also been several pre-releases of the GenBank data in various forms on CD-ROM; a subscription CD-ROM service through the Government Printing Office began October 1.

Dr. Lipman next described plans to create a group representing private companies that would get together periodically to hear about NCBI plans and products and provide evaluation and feedback to NCBI staff. The group would consist of about six representatives

drawn from firms in various areas--molecular sequence analysis, protein structure modeling, hardware companies (e.g., manufacturers of peptide sequencers), and pharmaceutical companies. One possible outcome of such a group would be for NCBI to sponsor an annual technology transfer forum based on the main issues this group raised. Dr. Lindberg suggested asking the appropriate associations to advise on representation for the group. Dr. Clutter suggested the possibility of a conflict-of-interest problem, for example, if a company that has a Federal grant to conduct research sits on the NCBI group and advises NCBI staff. She also commented that GenBank, which began in the early 80s, was originally supported by a shared grant from the National Science Foundation and the NIGMS. She raised the question about how data in GenBank is validated. Dr. Lipman said that the data integrity issue is a vexing one. Certain automatic tests can be performed to determine internal consistency, but there can be problems with actually applying these tests. Also, assembling data from many sources and using the redundancy and overlap of data can help improve reliability. When a problem is found, it is necessary to report back to the source of the data so the error can be corrected there and not recycled. In response to another question from Dr. Clutter, Dr. Lipman said that NCBI is transferring \$2.5 million to Los Alamos to process the direct submission of data from authors. It costs about \$1.0 million to scan index journals at NLM.

XVI. PLANNING PANEL REPORT: TOXICOLOGY AND ENVIRONMENTAL HEALTH

Dr. Elliot Siegel, NLM Associate Director for Health Information Programs Development, reported that the Planning Panel on Toxicology and Environmental Health held its final meeting in March 1992 and is now submitting to the Board of Regents its report. He thanked the panel members and the NLM staff who were involved in the meetings and in preparing the draft report that is now before the Board. Especially helpful was an early report prepared for the panel by Dr. Barry Johnson of the Agency for Toxic Substances and Disease Registry. Dr. Henry Kissman, who recently retired as NLM Associate Director for Specialized Information Services, was also of great assistance. Dr. Siegel said that the draft plan speaks thoughtfully to ensuring that core information resources in toxicology and environmental health are available from NLM. It is persuasive in describing the need to facilitate access to these resources using the latest technologies. It also addresses the needs to improve the information infrastructure in such areas as molecular biology. This was the third long-range panel created to consider areas not addressed, or addressed incompletely, or where circumstances had changed considerably since completion of the original NLM Long-Range Plan. The first two were in the fields of outreach and imaging. This plan, like those, when implemented, should give rise to the launching by NLM of new and exciting projects.

Following Dr. Siegel's presentation, Dr. Edward N. Brandt, Jr., co-chair of the panel, said three major goals were enunciated by the panel. Under the first--to provide selected core information resources and services--the panel devised five recommendations. Two of special note are to expand MeSH and the UMLS in the area of toxicology and environmental health, and to integrate databases in this area. The second goal is to facilitate access to national and international resources. There are seven recommendations in this area. Dr. Brandt noted especially the one concerning the creation of a directory of all sources of

information. The third goal is to provide an information infrastructure for future scientific discovery. There are four recommendations under this goal, one being to expand the existing NLM/National Academy of Sciences' Toxicology Information Program Committee (TIPCOM) so that it can better guide the Library's programs in this area.

Ms. Beverly Allen, who was the Board's liaison to the panel, said that the 37 panel members all had ample opportunity to present their views. She believes the present report is a fair consensus of their beliefs and recommendations. The goals expressed are broad enough to allow NLM to integrate them into the Library's Long-Range Plan. The members understand that the implementation of some of the recommendations would be dependent on additional funds for the NLM. The panel deliberately avoided quantifying the resources that would be required to implement the recommendations. She said that the panel members can serve as an informal network of experts for future guidance of the Library in this area. She moved that the report be adopted by the Board and incorporated by the Library in its NLM Long-Range Plan. Dr. Lindberg commented that this was the most difficult of the three special areas of long-range planning so far addressed; he supports the panel's findings and recommendations. After a discussion about risk assessment and about how the plan should be publicized and disseminated, the Board voted unanimously to accept the panel's report. Dr. Lindberg said that the staff would present an implementation plan to the Board at a future meeting.

XVII. REVIEW OF 1990 GRATEFUL MED OUTREACH AWARDS

Dr. Angela Ruffin of NLM's Network Office reported that two NLM Library Associates, Denise Radow and Jeff Bridgers, conducted a preliminary evaluation of NLM's program of awarding small purchase orders (less than \$25,000) for Grateful Med outreach. The program was prompted by the 1989 report of the Board of Regents outreach panel, chaired by Dr. Michael DeBakey. The proposed projects were required to target health professionals in underserved areas, primarily rural or inner city. The first 30 projects (in 22 states) were funded for 18 months beginning September 30, 1990; 15 projects received a three-month extension. A second round of 15 projects in 12 states was funded beginning September 30, 1991. A third round of 13 projects began on September 30, 1992. Using slides, Dr. Ruffin showed the geographic locations of the first 30 projects, the nature of their institutional settings, and the kinds of minority populations served. More than 3,900 health professionals were contacted through the 29 projects that were completed, either through Grateful Med demonstrations or training sessions. More than 550 codes were registered during the course of the projects. Physicians were the largest category of health professionals trained (1,831); nurses were the second largest (692); others trained were administrators, dentists, pharmacists, and physical therapists. Slightly more than half were unaffiliated with a medical library. Usage figures presented by Dr. Ruffin showed a steady increase in the number of codes used; this trend will be tracked in the future. Individual physicians held the largest number of codes (234 or 42 percent), hospital inpatient facilities the second largest (108 or 20 percent), and outpatient facilities, health education facilities, health research institutions, and "other" held the rest. It is not surprising to note that codes in institutional settings are used more frequently than those in individual practice settings. More data over a longer time will be required to fairly assess the impact of the outreach projects. Dr. Ruffin noted that there were a number of nonquantifiable results as well. It was apparent that having

strong institutional support was of inestimable value in making a project successful. Also, the amount of professional staff time to administer the projects was consistently underestimated by the project directors. A number of different approaches were used in promotion and marketing, including direct mail and announcements in local newspapers. Among the reasons noted for reluctance to participate were "computer anxiety" and the perception that computers were primarily for billing and other office-related purposes. Scheduling the sessions was also sometimes a problem; connecting the Grateful Med training or demonstration to a previously scheduled meeting or event was frequently a successful ploy. Another successful incentive was to offer Continuing Education credits to the participants. Followup and reinforcement of basic principles were found to be essential in many of the projects. Although project directors were required to evaluate the success of their projects, this frequently took the form of counting the participants or, sometimes, administering self-evaluation surveys. Project directors were also required by the Network Office to complete a 12-question questionnaire. Dr. Ruffin reported briefly on the results and quoted some of the comments of the project directors. The Network Office developed a trainers' manual for leaders on future Grateful Med outreach projects. The Office will examine closely those projects that were especially successful to see if lessons learned there can be applied to other projects.

Following Dr. Ruffin's presentation, Ms. Wendy Carter commended the Library on being responsive to the Board's outreach recommendations. She said that the feedback from these projects will be extremely useful in guiding the Library's future efforts. Ms. Rachael Anderson commented that in Arizona attendance grew at succeeding training and demonstration sessions and that the contacts made at the initial sessions were very valuable in planning followup outreach action.

XVIII. COLLECTION DEVELOPMENT MANUAL

Ms. Duane Arenales, Chief of NLM's Technical Services Division, reported on the two-year effort to revise NLM's *Collection Development Manual*. The Board of Regents statement on the scope and coverage of the NLM collection shapes the Library's collecting effort. The Manual is the expression of this statement, which was last updated in 1983. It serves as a day-to-day guide for the staff (and for our literature vendors around the world) on the subject range of materials to be collected and the extent or completeness of the collecting effort. The collection development staff at the three national libraries (the Library of Congress, the National Agricultural Library, and the NLM) use the manual as a tool to assist in keeping duplication of collections to the minimum necessary. Periodic revision of the Manual is needed to document the way in which the collection should evolve so that NLM can stay abreast of emerging fields and anticipate user needs. Ms. Arenales briefly described the revision effort that resulted in the new draft manual now being presented to the Board. She said there were four goals for the 1992 revision: to reflect ongoing developments in biomedicine; to focus resources on the core biomedical literature; to clarify guidelines in problem areas (for example, public health works which characterize diverse viewpoints toward major health crises); and to write a manual that in the coming years would be adaptable and responsive to evolving information needs in the health sciences. To accomplish this last goal, a philosophical rationale for selection decisions was articulated. This is especially important for certain information formats such as audiovisuals, pamphlets,

and electronic publications. The number of items to be added to the collection is expected to increase by less than five percent annually as a result of the new guidelines. Ms. Arenales pointed out specifically several of the changes being suggested for adoption by the Board of Regents in the actual "policy" statement in the new Manual.

Ms. Rachael Anderson, the Board's liaison to the revision project, said that the high priority being accorded to the acquiring and processing of materials is integral to protecting the basic services of the NLM. This is especially important these days since many resource and academic libraries across the Nation are making major cuts in their collections. She agrees with the new, broader wording of the collection policy regarding newer formats. The NLM's policy is used as a model by libraries around the Nation, she said. She moved that the Board approve the new *Collection Development Policy Statement*. The motion passed unanimously.

XIX. MEDINFO '92

Ms. Betsy Humphreys, NLM Deputy Associate Director for Library Operations, reported briefly on the World Congress on Medical Informatics (MEDINFO '92) meeting in Switzerland in September 1992. There were about 1200 attendees; NLM staff were involved in about 15 sessions. NLM programs featured included the project to evaluate MEDLINE use by the Critical Incident Technique, the Visible Human project, and COACH. Ms. Humphreys said there were a large number of papers dealing with various aspects of the Unified Medical Language System. It was her impression (and that of others) that the general quality of presentations shows steady improvement in range and treatment of subjects. There was great interest in such topics as communications, automated patient records, and standardization. One of the primary benefits of the meeting was to identify new collaborative possibilities. An important activity in which NLM was involved was the Second International Workshop on Collaboration on the Application of Medical Informatics, held immediately prior to the meeting. She concluded by saying that it was gratifying to see in what high regard NLM is held around the world. The opening keynote speaker, Dr. Sune Bergstrom of Sweden, spoke at some length about the importance of the international MEDLARS Centers and NLM's cooperation with the World Health Organization; NLM's contribution was acknowledged in many of the program sessions.

XX. HISTORY OF THE PUBLIC HEALTH SERVICE (VIDEOTAPE)

Dr. Daniel Masys, Director of the Lister Hill Center, showed a videotape on the history of the U.S. Public Health Service that was recently produced by Lister Hill Center staff.

XXI. ADJOURNMENT

The meeting was adjourned at 12:15 p.m., Friday, October 2.

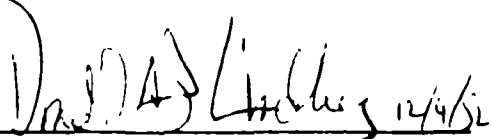
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 Subcommittee Meetings on Wednesday, September 30:
 Extramural Programs Subcommittee--2:00-3:30 P.M.
 (Attachment B)
 Subcommittee on Pricing of NLM Services-3:00-4:00 P.M.
 (Attachment C)
 Planning Subcommittee--4:00-5:00 P.M.
 (Attachment D)

ACTIONS TAKEN BY THE BOARD OF REGENTS


1. The Board approved a new NLM pricing structure, with the proviso that the licensees of NLM data are held responsible for ensuring their integrity, accuracy, completeness, and currency.
2. The 1992 NLM Board of Regents Award for Scholarship or Technical Achievement was presented to Karen Patrias, Reference Librarian in the Public Services Division of Library Operations.
3. The Board unanimously accepted the Planning Panel Report on Toxicology and Environmental Health.
4. The Board approved the new Collection Development Policy Statement.
5. The Board concurred with the recommendations of the Extramural Programs Subcommittee. Grant applications recommended for further consideration are listed in the summary actions (Attachment E).

.....

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)
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 Lawrence H. Cohn, M.D. (Date)
 Chair

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BOARD OF REGENTS
EXTRAMURAL PROGRAMS SUBCOMMITTEE MEETING

September 30, 1992

2:00 to 3:30 p.m.

ATTENDEES

Subcommittee Members Present:

Ms. Rachael K. Anderson, Chair
Ms. Beverly E. Allen
Ms. Wendy Carter
Dr. Lawrence H. Cohn (ex officio)
Dr. H. Kenneth Walker

Subcommittee Member Absent:

Dr. Kathleen A. McCormick

NLM Staff Present:

Dr. Milton Corn, Acting Associate Director, EP
Mrs. Ruth Bortz, Grants 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
Mrs. Rose Marie Holston, Program Analyst, EP
Mrs. Frances Johnson, Program Officer, EP
Ms. Ellen Meltzer, Grants Management Specialist, EP
Mr. Richard T. West, Chief, Office of Program Planning and Evaluation, EP

**BOARD OF REGENTS
SUBCOMMITTEE ON PRICING OF NLM SERVICES**

**September 30, 1992
3:00 to 4:00 p.m.**

ATTENDEES

Subcommittee Members Present:

Dr. Lawrence DeNardis
Dr. Lawrence Cohn (ex officio)
Mr. Joseph Howard
Capt. David Kemp

Subcommittee Members Absent:

Dr. Jeanne Spurlock
Dr. Lois DeBakey

NLM Staff Members Present:

Mr. Kent Smith
Ms. Lois Colaianni
Mr. Harry Bennett
Mr. Charles Kalina
Mr. Sheldon Kotzin
Ms. Karen Ginter
Ms. Sally Burke

The subcommittee met to examine the NLM's pricing structure and evaluate proposed changes prior to the full Board's periodic review of NLM's pricing policy and practice.

Mr. Smith summarized the history and background of NLM's current pricing policies for MEDLARS. He noted that the NLM with funds it receives through the appropriation process, supports the generation costs of building and maintaining its MEDLARS databases while domestic users pay the full cost of accessing them. Foreign users as non-taxpayers, pay a surcharge. Costs are calculated across all Medlars services rather than by each individually.

Mr. Smith then reported the most recent direction to NLM by the Appropriations Committees. House Report language specifically advises NLM to restrict access charges to telecommunications, mail, reproduction, and other related costs; and to carefully review all fees to make sure that they are compatible with the mission of the organization. In response, the NLM staff examined and subsequently revised the current pricing structure. Mr. Smith presented the new pricing structure for NLM information services that responds

to the Committees' concerns, yet conforms to NLM's basic philosophy and pricing principles. The plan is designed not only to recover costs, but to provide users with new incentives to utilize NLM on-line services and its databases worldwide. Mr. Smith discussed the features of the new structure:

Domestic Users

Online:

- Prices will be reduced approximately 50 percent.
- Users may elect to utilize a new recomputed algorithm for searches performed; or a predetermined amount based upon the number of searches they expect to perform. Mr. Smith explained that this feature has built-in volume discounts. The discounts would rise as pre-determined amounts increase thereby encouraging volume purchases. If usage exceeds the pre-determined rate, the user pays more but at the discounted rate
- Experimental programs with organizations representing large groups of health professionals (like ACP) would be expanded using flat rates of about \$200 per user per year for unlimited online access.
- Within the basic pricing structure special arrangements may be negotiated with institutions by NLM's Promotion Manager. Such flexibility will permit NLM to understand the complexity of certain institutions better and to meet their needs reasonably.

Tape:

- All licensees of NLM data will pay a flat license fee that covers all reproduction, shipping and handling of tapes. There will be no use fees, but licenses will be written to protect data base integrity.

International Users

Mr. Smith reported that the rules for international access will be somewhat different and will be in accordance with Congressional intent.

Online:

- Online foreign access fees will be the reduced algorithm plus a foreign surcharge based on usage.
- Pre-determined prices by search including discount arrangements (as available domestically) will not be offered except through experimental agreements.
- Flat rate unlimited use experiments may be negotiated with international partners (such as the British Library) wishing to offer access via Grateful Med over INTERNET.

- In instances where international centers do not provide the option of direct access to NLM, NLM will offer individuals direct access to NLM via Grateful Med over INTERNET. The search fee will be calculated according to the reduced algorithm and the foreign surcharge. There will be a requirement that a deposit account or credit card arrangement must be set up with NTIS in advance.

Tape:

- Tape licenses will consist of the flat fee plus a foreign surcharge, but no use fees.

Subcommittee members discussed the proposed structure including its new cost elements, and impact on amounts recovered and fees charged. They agreed that while the new pricing structure significantly reduces NLM prices, it appears consistent with the NLM mission, and Congressional interests in providing increased access to medical information. Although Dr. Lois DeBakey was unable to attend, she provided written comments supporting the new pricing structure, and stressing that licensees of NLM data must continue to be held responsible for ensuring that the MEDLARS databases remain accurate, complete, current and accessible.

After the above presentation and discussion, the Subcommittee on Pricing recommended that the Board approve the new pricing structure with the caveat that NLM database integrity continue to be protected through appropriate quality controls within licensing agreements

BOARD OF REGENTS

PLANNING SUBCOMMITTEE MEETING

September 30, 1992

4:00 to 5:00 p.m.

ATTENDEES

Subcommittee Members Present:

Dr. Lawrence H. Cohn, Chair
Ms. Beverly E. Allen
Dr. Robert E. Kahn

Subcommittee Members Absent:

Dr. Mary E. Clutter
Dr. Lois E. DeBakey

NLM Staff Present:

Dr. Elliot Siegel
Ms. Susan Buyer

The subcommittee met to prepare for an agenda item for full Board action on Friday, October 2: the report of the NLM Long-Range Planning Panel on Toxicology and Environmental Health.

The Panel, which had been chaired by Dr. Edward N. Brandt, Jr. and Dr. Gilbert S. Owen, had submitted its report to the Board of Regents in September. Drs. Siegel and Brandt were to present the report to the Board at its October meeting and the Board would be requested to adopt the Panel Report as part of its Long-Range Plan.

Dr. Siegel reviewed his presentation to the Board with the Planning Subcommittee. A discussion of the recommendations of the report ensued.

The meeting adjourned at 5:00 p.m.

APPLICATIONS APPROVED BY COUNCIL
(ARRANGED NUMERICALLY BY PROGRAM)
PROG. CLASS: COUNCIL DATE: SEPT./OCT. 1992
INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
1 G07 LM05322-01A2	NORTHWEST OHIO RURAL MEDICAL LIBRARY CONSORTIUM	01A2 65,119
1 G07 LM05337-01A1	IMPROVING CONSORTIUM LINKAGE VIA TECHNOLOGICAL PARITY	01A1 156,704
1 G07 LM05468-01	READING HOSPITAL LIBRARY AUTOMATION PROJECT	01 11,173
1 G07 LM05471-01	MEDICAL LIBRARY COMPUTER LABORATORY	01 12,000
1 G07 LM05474-01	SOMEWA INFORMATION DELIVERY ELECTRONIC ACCESS-IDEA SITES	01 94,422

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COUNCIL DATE: SEPT./OCT. 1992

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
2 G08 LM05050-03	IAMS PHASE II - U WASHINGTON HEALTH SCIENCES CENTER	03 245,412 04 103,695
1 G08 LM05478-01	MISSISSIPPI HEALTH SCIENCES INFORMATION NETWORK(MISHIN)	01 439,189 02 296,781 03 258,353

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COUNCIL DATE: SEPT./OCT. 1992

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
2 R01 LM04298-07	MENTAL MODELS IN CLINICOPATHOLOGIC REASONING	07 129,947 08 137,056 09 145,059
2 R01 LM04692-06	KNOWLEDGE-BASED SYSTEM FOR CARDIAC IMAGE INTERPRETATION	06 173,706 07 180,654 08 187,880
2 R01 LM05102-04	COMPARATIVE MODELING OF PROTEIN STRUCTURE	04 104,802 05 102,628 06 107,850
2 R01 LM05118-04	ALGORITHMS FOR MACROMOLECULAR STRUCTURE ANALYSIS	04 126,877 05 133,866 06 141,407
1 R01 LM05324-01A1	CLINICAL MANAGEMENT OF CRITICAL ILLNESS USING AI	01A1 254,166 02 262,597 03 263,556
1 R01 LM05361-01A1	STATE INTERVENTION AGAINST CONTAGIOUS DISEASE 1830-1930	01A1 20,588 02 18,369
1 R01 LM05432-01	EVALUATION OF MORE INFORMATIVE (STRUCTURED) ABSTRACTS	01 238,789 02 243,777 03 246,194 04 215,533
1 R01 LM05433-01	MEDICINE AND SOCIETY IN HURTTENBERG, 1730-1830	01 18,250 02 18,250

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APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
1 R01 LM05441-01	EVALUATION OF A PROBLEM-BASED LEARNING ENVIRONMENT	01 155,176 02 164,213 03 170,185
1 R01 LM05466-01	DUALS SECONDARY REVIEW: NS EVALUATION OF THE DENNY-BROWN RESEARCH COLLECTION	01 35,009
1 R01 LM05469-01	EMERGENCE OF AN AMERICAN SCIENCE OF OCCUPATIONAL DISEASE	01 24,803
1 R01 LM05470-01	PIETIST MEDICATIONS; MEDICAL CARE IN THE MIDDLE COLONIES	01 24,606
1 R01 LM05479-01	SPREADING THE GERM THEORY OF DISEASE	01 25,075 02 24,648
1 R01 LM05480-01	MEDICAL PRACTICE EDUCATION: A CRITICAL STUDY	01 74,493 02 64,207

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APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
1 R29 LM05413-01A1		01A1 83,668
		02 70,758
		03 75,363
		04 57,990
		05 62,407

A BIOLOGICAL KNOWLEDGE-BASE MANAGEMENT SYSTEM

APPLICATIONS APPROVED BY COUNCIL - DUAL REVIEW
 (ARRANGED NUMERICALLY)
 PROG. CLASS:
 INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE
 COUNCIL DATE: SEPT./OCT. 1992

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
2 R01 CA24806-14	DUALS SECONDARY REVIEW: LM RADIOGRAPHIC IMAGING FOR CANCER DIAGNOSIS	14 228,858 15 238,013 16 247,533
2 R01 CA32870-12A1	DUALS SECONDARY REVIEW: LM VISUAL SEARCH AND FILM READER ERROR IN RADIOLOGY	12A1 160,621 13 156,238 14 162,487
1 R01 CA56980-01A1	DUALS SECONDARY REVIEW: LM DIGITAL ALTERNATOR SYSTEM FOR PRIMARY CHEST DIAGNOSIS	01A1 194,817 02 185,460 03 196,257 04 199,580
1 R01 CA58283-01	DUALS SECONDARY REVIEW: LM EFFECTS OF IMAGE BRIGHTNESS AND RESOLUTION ON DIAGNOSIS	01 164,475 02 179,286 03 176,188 04 119,112
1 R01 CA58302-01	DUALS SECONDARY REVIEW: LM VISUAL DETECTION EFFICIENCY IN MEDICAL IMAGING	01 240,079 02 169,104 03 176,043 04 183,268 05 190,789
1 R01 HS07592-01	DUALS SECONDARY REVIEW: LM THE IMPACT OF ENCODERS ON DATA QUALITY	01 66,639 02 29,318

APPLICATIONS APPROVED BY COUNCIL - DUAL REVIEW
(ARRANGED NUMERICALLY)
COUNCIL DATE: SEPT./OCT. 1992
INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE
PROG. CLASS:

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
1 R13 HL49935-01	DUALS SECONDARY REVIEW: NS CONFERENCE ON INFORMATION PROCESSING IN MEDICAL IMAGING	01 55,369

APPLICATIONS APPROVED BY COUNCIL - DUAL REVIEW
(ARRANGED NUMERICALLY)

PROG. CLASS:

COUNCIL DATE: SEPT./OCT. 1992

INSTITUTE/DIVISION: NATIONAL LIBRARY OF MEDICINE

APPLICATION NUMBER	PROJECT TITLE	AMOUNTS RECOMMENDED
1 R29 GM48559-01	DUALS SECONDARY REVIEW: LM	01 51,463
		02 53,522
		03 77,843
	USING PROTEIN FEATURES FOR STRUCTURE DETERMINATION	04 82,956
		05 84,195