

University of Minnesota

BIENNIAL REPORT

of the President and the Board of Regents

1968-1970

to the

Legislature of the State of Minnesota

Approved and Adopted by the Board of Regents

June 30, 1970

THE BOARD OF REGENTS

As of June 30, 1970

**The Honorable Lester A. Malkerson, Minneapolis
Chairman**

**The Honorable Marjorie J. Howard (Mrs. C. Edward), Excelsior
Vice Chairman**

The Honorable Elmer L. Andersen, St. Paul

The Honorable Lyman A. Brink, Hallock

The Honorable Fred A. Cina, Aurora

The Honorable Daniel C. Gainey, Owatonna

The Honorable Albert V. Hartl, Fergus Falls

The Honorable Herb L. Huffington, M.D., Waterville

The Honorable Fred J. Hughes, St. Cloud

The Honorable George W. Rauenhorst, Olivia

The Honorable Neil C. Sherburne, Lakeland Township

The Honorable John A. Yngve, Plymouth

The University of Minnesota adheres to the principle that all persons shall have equal opportunity and access to its educational facilities, activities, and employment without regard to race, creed, sex, or national origin.

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To the Honorable Board of Regents
University of Minnesota

Mrs. Howard and Gentlemen:

I am enclosing the 1968-1970 *Biennial Report*, summarizing the activities of the various departments of the University of Minnesota for the two-year period ending June 30, 1970.

The *Biennial Report* series is a primary source of comprehensive information on enrollments and curriculum changes, research and instruction efforts, faculty activities and honors, and other developments within the academic and administrative units of the University, presented in a consistent format over a period of time. It is provided for by state law to supply information to the members of the State Legislature and others.

This substantial report on the activities, responsibilities, and statistics of the University of Minnesota is a major segment of our accounting responsibilities to the government and people of Minnesota.

Sincerely,

A handwritten signature in black ink, reading "Malcolm Ross". The signature is written in a cursive style with a large, sweeping "M" and "R".

President

Minneapolis, Minnesota
July 1, 1970

BIENNIAL REPORT

1968-1970

SIGNIFICANT EVENTS, ACTIVITIES, AND ACTIONS

Administrative Reorganization—Two new vice presidential positions were created in July 1969. The vice president for investments, who was also named executive director of the University of Minnesota Foundation, and the vice president for planning and operations each assumed some of the responsibilities of the former vice president for business administration, who became vice president and consultant to the President.

In May 1970, the vice president for investments announced his resignation. The vice president for planning and operations assumed responsibility for investments, and his title was changed to vice president for finance, planning, and operations. In June the Regents named a new executive director of the Foundation who was also named director of development.

The title of the vice president for educational relationships and development was changed to vice president for coordinate campuses and educational relationships in September 1969. The change reflected the shift of development responsibilities to other units and the strengthening of the liaison between the central administration and the four coordinate campuses.

At the University of Minnesota, Morris, the title of the chief administrative officer was changed from dean to provost in July 1968.

With the retirement of the dean of students in 1969, the units formerly reporting to that Office became directly responsible to the Office of the Vice President for Student Affairs.

Academic Reorganization—In June 1970, the Board of Regents approved the restructuring of the College of Agriculture, Forestry, and Home Economics into three separate colleges. Deans of the new colleges will report to the dean of the Institute of Agriculture. A School of Statistics was established in the College of Liberal Arts, incorporating the former Department of Statistics, which was renamed the Department of Theoretical Statistics; a new Department of Applied Statistics; and the Statistical Center. A School of Public Affairs, an expansion of the former Public Administration Center, was also created.

New departments established during the biennium included the Departments of Afro-American and American Indian Studies in the College of Liberal Arts; the Department of Clinical Pharmacy in the College of Pharmacy; the Department of Computer, Information, and Control Sciences in the Institute of Technology; the Department of Criminal Justice Studies, which reports directly to the vice president for academic administration; the Department of Family Practice and Community Health in the Medical School; and the Departments of Special Education and Speech Pathology and Audiology at the University of Minnesota, Duluth. Other new units included the Research and Development Center for the Handicapped and the State Research Coordinating Unit in the College of Education and the Fire Service Information, Research, and Service Center in the Municipal Reference Bureau.

Major restructuring took place in several areas. The Office of International Programs became part of the Office of the Vice President for Academic Administration; the Bureau of Student Loans and Scholarships was merged with the College Work-Study Program to become the Office of Student Financial Aid; the Psycho-Educational and Child Study Clinics in the College of Education were

combined to become the Psycho-Educational Center; the Division of Radiation Therapy in the Medical School was redesignated the Department of Therapeutic Radiology and the Departments of Dermatology, Neurology, Neurosurgery, and Orthopedic Surgery were formed from divisions in other departments; and programs of the Department of Chemical Engineering, the Department of Civil Engineering and Hydraulics, and the School of Mineral and Metallurgical Engineering in the Institute of Technology were combined and reorganized as the Department of Chemical Engineering and Materials Science and the Department of Civil and Mineral Engineering. The Speech and Hearing Clinic, formerly reporting to the vice president for student affairs, became part of the Department of Speech Science, Pathology, and Audiology in the College of Liberal Arts.

The name of the University of Minnesota Technical Institute, Crookston, was changed to University of Minnesota Technical College, Crookston, during the biennium. In other name changes, the Department of Aeronautics and Engineering Mechanics became the Department of Aerospace Engineering and Mechanics, the Program in Hospital Administration became the Program in Hospital and Health Care Administration, the Mines Experiment Station became the Mineral Resources Research Center, and the Department of University Student Unions became the Department of the Minnesota Union.

University of Minnesota Technical College, Waseca—The 1969 Legislature appropriated planning funds for a Technical College at Waseca. Scheduled to open in fall 1971, the new Technical College will offer a program similar to that at the University of Minnesota Technical College, Crookston. Edward C. Frederick, superintendent of the Southern School and Experiment Station at Waseca, was named director.

Health Sciences—An external committee of distinguished medical educators visited the health sciences in January 1970. In March they presented to the Regents a set of 16 recommendations on structure and reorganization, including the recommendation that a vice presidential position for the health sciences be created. Within the University, extensive planning for the reorganization of the health sciences involved the Council of Health Sciences Deans and Directors, the Regents' committee on health sciences, the faculties of all health sciences units, the Senate committee on educational policies, and central administrative officers.

Equal Opportunity—Regents' policies adopted in 1968 and 1969 reaffirmed the University's commitment to equal employment and educational opportunity for all. Traditional nondiscrimination policies were augmented by affirmative action programs in the academic, Civil Service, and student affairs areas and in plant services, construction, and purchasing operations. An equal employment opportunity officer and an Administrative Task Force on Equal Opportunity were appointed to initiate and coordinate affirmative action efforts.

Senate Reorganization—The University Senate adopted a new constitution in June 1969, with provision for student membership and formation of campus assemblies on all campuses of the University.

Kegler Task Force—In late 1969 and early 1970, a task force named by President Malcolm Moos and headed by Associate Vice President Stanley B. Kegler presented a two-part report titled "Availability of Educational Opportunity: An Analysis of Higher Education Needs in Minnesota, 1970-1980."

Among the suggested alternatives for meeting Minnesota's projected education needs were major development of the St. Paul campus to handle much of the burden of lower-division growth, increased capability for handling upper-division students on both the Minneapolis and St. Paul campuses, expansion and change in purpose and function of both General College and University College, development of a five-year college in Rochester, and expansion of the Duluth campus.

Educational Innovation—In June 1970, the University Senate approved a proposal to set aside 3 percent of the University's instructional budget for educational development and innovation. The plan is to be implemented gradually over several years. When it becomes fully operational, one third of the 3 percent will be made available for programs that are of primary interest to departments, one third for college-wide programs, and one third for University-wide programs.

At the same meeting of the Senate, approval was given for experimental programs within General College and University College. The Senate approved proposals for General College to begin experimental three- and four-year programs for a limited number of students and for University College to become a vehicle for experimentation by University faculty members from all colleges.

Martin Luther King Program—In fall 1968 the first group of students enrolled in the Martin Luther King program, which was established in April 1968. The multiracial program is for students who need significant financial or academic assistance or both. During the biennium, 502 Martin Luther King students were registered for classes. Students in General College received tutoring and counseling services through the Consolidated HELP Center. The College of Liberal Arts offered tutorial support to all Martin Luther King students registered for Liberal Arts courses, including students in other colleges.

Honorary Degree—At Commencement ceremonies in December 1969, the honorary degree of Doctor of Science was awarded to Melvin Calvin, Nobel Prize winner and professor of chemistry at the University of California, Berkeley. The honorary degree was the forty-seventh awarded in the history of the University.

Regents' Professorships—The Regents' Professorship is the highest honor the University can give to a member of its faculty. Regents' Professors are chosen on the basis of the scope and quality of their scholarly or artistic contributions, the quality of their teaching, and their contributions to the public good.

Regents' Professors named during the 1968-1970 biennium were John Berryman, Regents' Professor of Humanities; Ralph E. Comstock, Regents' Professor of Genetics; Robert A. Good, Regents' Professor of Pediatrics; Leonid Hurwicz, Regents' Professor of Economics; Paul E. Meehl, Regents' Professor of Psychology; James B. Serrin, Jr., Regents' Professor of Mathematics; and Cecil J. Watson, Regents' Professor of Medicine.

Outstanding Achievement Awards—Outstanding Achievement medals and citations have been conferred on 527 individuals as of June 30, 1970. The 45 distinguished alumni who received these awards during 1968-1970 are as follows:

Olaf S. Aamodt	Walter D. Loban
John Henry Aldes	Walter J. McNerney
Delwin M. Anderson	Walter F. Mondale
Frank A. Bovey	Harold P. Morris
Lester Breslow	Marion I. Murphy
Henry B. Bull	Kenneth E. Ogren
Myron Christy	Elden H. Olson
Sister Mary Edward Dolan	William O'Shields
John B. Faegre	Robert G. Parr
J. Leonard Frame	Jeannette Piccard
Esther Garrison	Harold W. Pratt
Helen Hofer Gee	Harry Reasoner
Cyril H. Goulden	Karl S. Quisenberry
William Hagerty	Bichat Rodrigues
Jerome Hiniker	Harold G. Scheie
James D. Hodgson	Sam Foster Seeley
Dwight A. Ink	Kathryn M. Smith
John Jamieson	Eileen Thornton
Arno Joseph Jewett	John A. Wallace
Wendell E. Johnson	W. Allen Wallis
Howard R. Jones	Charles B. Wilkinson
Albert M. Kuhfeld	John A. Zivnuska
Jeanette Lee	

Alumni Service Awards—Through June 30, 1970, there have been 45 Alumni Service Awards conferred upon alumni in recognition of service to the University. Recipients during 1968-1970 are as follows:

Waldo E. Hardell
Albert H. Heimbach
Gates Hunt

Grant H. Johnson
Maynard Speece
Milton S. Wunderlich

UNIVERSITY PERSONNEL

Changes in Personnel

BOARD OF REGENTS

The 1969 Legislature reelected Albert V. Hartl, Fergus Falls, for a two-year term and Fred J. Hughes, St. Cloud, for a six-year term. Lyman A. Brink, Hallock attorney appointed in 1968 to fill the vacancy created by the death of Regent Herman F. Skyberg, Fisher, was elected to complete the six-year term.

Not reelected to the Board were Otto A. Silha, Minneapolis, who was appointed in 1961 to fill a vacancy and elected in 1963, and Dr. Harry B. Hall, Edina, who was appointed in 1968 to fill the vacancy created by the death of Regent Charles W. Mayo, M.D., Rochester. William K. Montague, Duluth, who was elected in 1963, did not seek reelection.

New Regents elected for six-year terms were John A. Yngve, Plymouth, former state legislator and president of Nortronics Company, Inc., succeeding Regent Silha; Neil C. Sherburne, Stillwater, secretary-treasurer of the state AFL-CIO, succeeding Regent Hall; and Fred A. Cina, Aurora attorney and former state legislator, succeeding Regent Montague.

Regent Skyberg, who died September 8, 1968, at the age of 71, served on the Board from 1949 to the time of his death. Regent Mayo, who died July 8, 1968, at the age of 70, served on the Board from 1951 to the time of his death. He served as chairman from 1961 to 1967.

FACULTIES

Retirements, 1968-1970

Each year there are faculty members who reach the age of compulsory retirement, bringing to a close a long period of active association with the University.

The following faculty members, with their years of service indicated in parentheses, retired during the biennium.

1968-1969

- Karl W. Anderson, clinical associate professor emeritus of medicine (1926-69).
- Paul Anderson, professor emeritus of civil engineering (1934-35; 1937-69).
- Murray B. Bates, assistant professor emeritus of public health (1946-69).
- Reginald G. Bickfor, professor emeritus of physiology, Mayo Graduate School of Medicine (1948-69).
- Raymond N. Bieter, director and professor emeritus, Special Educational Services and pharmacology (1923-69).
- Walter J. Breckenridge, director and professor emeritus, James Ford Bell Museum of Natural History (1926-69).
- Heinz Bruhl, clinical assistant professor emeritus of pediatrics (1950-69).
- Arthur H. Bulbulian, clinical professor emeritus of dentistry (1959-66; 1966-69).
- Paul M. Burson, professor emeritus of soil science (1941-69).
- Otto E. Doman, associate dean, director, and professor emeritus, College of Education and Bureau of Field Studies and Surveys (1948-69).
- Nina E. Draxten, assistant professor emeritus of literature, writing, and speech, General College (1945-69).
- C. Lindsley Edson, associate professor emeritus of music, Duluth (1952-69).
- John L. Emmett, professor emeritus of urology, Mayo Graduate School of Medicine (1931-69).
- Albert M. Fulton, director and professor, Department of Evening Classes and speech (1931-68).

- George A. Hallenbeck, professor emeritus of surgery and physiology, Mayo Graduate School of Medicine (1940-44; 1946-69).
- Cyrus O. Hansen, clinical assistant professor emeritus of radiology (1929-69).
- Malcolm M. Hargraves, professor emeritus of medicine, Mayo Graduate School of Medicine (1935-69).
- Robert G. Hinckley, chief and professor emeritus of mental hygiene, University Health Service (1930-69).
- Elmer M. Johnson, assistant professor emeritus of agriculture (1935-69).
- Philip D. Jordan, professor emeritus of history (1945-69).
- Paul R. Lipscomb, professor emeritus of orthopedic surgery, Mayo Graduate School of Medicine (1939-69).
- James S. Lombard, director and professor emeritus, Department of Concerts and Lectures (1938-69).
- Theodore S. Long, assistant professor emeritus of English, Morris (1925-69).
- James G. Love, professor emeritus of neurosurgery, Mayo Graduate School of Medicine (1934-69).
- Helen A. Ludwig, associate professor emeritus of related arts (1938-69).
- Lloyd W. Peterson, director and assistant professor emeritus, Department of Athletics, Duluth (1927-31; 1947-69).
- James T. Priestley, professor emeritus of surgery, Mayo Graduate School of Medicine (1928-69).
- Harry W. Soderburg, assistant professor emeritus, Northwest School and Experiment Station, Crookston (1932-69).
- Horace L. Thomas, associate professor emeritus of agronomy and plant genetics (1932-69).
- Alfred Uihlein, professor emeritus of clinical neurosurgery, Mayo Graduate School of Medicine (1943-69).
- Cecil J. Watson, Regents' Professor and Distinguished Service Professor Emeritus of Medicine (1932-69).
- Lyle A. Weed, professor emeritus of bacteriology, Mayo Graduate School of Medicine (1945-69).
- Edmund G. Williamson, dean of students and professor emeritus of psychology (1929-30; 1931-69).
- David H. Willson, professor emeritus of history (1924-69).

1969-1970

- Richard B. Aakre, assistant professor emeritus, North Central School and Experiment Station (1946-70).
- Hugo L. Bair, associate professor emeritus of ophthalmology, Mayo Graduate School of Medicine (1934-69).
- Enock E. Bjuge, associate professor emeritus and Sherburne County extension agent, Agricultural Extension Service (1943-70).
- Marcia Edwards, associate dean and professor emeritus, College of Education (1930-70).
- Earl C. Elkins, professor emeritus of physical medicine and rehabilitation, Mayo Graduate School of Medicine (1950-69).
- Eunice V. Flock, professor emeritus of biochemistry, Mayo Graduate School of Medicine (1933-69).
- Harold B. Hanson, clinical associate professor emeritus of pediatrics and psychiatry and neurology (1942-69).
- Llewelyn P. Howell, assistant professor emeritus of medicine, Mayo Graduate School of Medicine (1931-69).
- Roy V. Lund, assistant vice president and director emeritus of Plant Services (1924-70).
- Esther Peterson, assistant professor emeritus and librarian, processing (1963-69).
- Albert V. Stoesser, clinical professor emeritus of pediatrics (1928-69).
- Robert E. Summers, special adviser emeritus to the vice president for student affairs (1938-70).
- Marion W. Thornton, associate professor emeritus of public health (1938-70).
- Wayne W. Weiser, professor emeritus and Blue Earth County extension agent, Agricultural Extension Service (1937-70).

Terminations, 1968-1969

- Raymond A. Allen, professor of pathology, Mayo Graduate School of Medicine, June 30, 1968.
- Eberhard R. Alsen, assistant professor of English, June 15, 1969.
- Henry A. Bent, professor of chemistry, June 15, 1969, to accept a position at North Carolina State University.
- Robert L. Bergherr, assistant professor of social work, June 30, 1969, to become superintendent, state of Minnesota correctional institution.
- Michael E. Blaw, associate professor of psychiatry and neurology, August 31, 1968, to accept a position at Southwestern Medical School.
- Mark Bolsterli, professor of physics, April 30, 1969, to accept a position at Los Alamos Scientific Laboratory.
- S. Gaylen Bradley, professor of microbiology, August 15, 1968, to become head, microbiology department, Medical College of Virginia.
- Byron W. Brown, Jr., director and professor, Department of Biometry and public health, August 31, 1968, to accept a position at Stanford Medical Center.
- Marguerite C. Burk, professor of agricultural economics, July 3, 1969, to accept a position with the U.S. Department of Agriculture.
- S. Marc Cohen, assistant professor of philosophy, June 15, 1969, to accept a position at Rutgers University.
- Helen M. Cost, assistant professor of dentistry, September 30, 1968, to move to Michigan with her husband.
- John L. Cowan, assistant professor, Office of the Dean of Students, August 30, 1968, to accept a position as director of research, College Student Personnel Institute (Claremont, Calif.).
- Joseph G. Cvancara, coordinator of training program and assistant professor, Agricultural Short Courses and agricultural education, September 16, 1968, to accept a position at the University of Idaho.
- Donald E. Davis, associate professor of educational administration, June 15, 1969, to devote full time to the operation of the Educational Management Service.
- Frederik DeJonge, assistant professor of humanities, Duluth, September 1, 1968.
- Carlos F. Diaz, associate professor of economics, June 15, 1969, to accept a position at Yale University.
- Bertram L. Ellenbogen, professor of sociology, August 31, 1968, to accept a position at Colorado State University.
- John L. Emmett, professor of urology, Mayo Graduate School of Medicine, October 4, 1968.
- Arnold Feldman, assistant professor of biophysics, Mayo Graduate School of Medicine, September 15, 1968.
- John Ferguson, professor of classics, June 15, 1969, to become director, art studies, Open University.
- Edward Flaccus, associate professor of science and mathematics, Duluth, June 15, 1969.
- Margaret M. Forbes, associate professor of classics, September 15, 1968.
- Richard J. Foster, professor of English, August 24, 1968, to accept a position at Macalester College.
- Tillie D. Ginsburg, associate professor of dentistry, August 31, 1968, to return to school for an advanced degree.
- John M. Gleason, assistant professor of classics, June 15, 1969, to accept a position at the University of California at Los Angeles.
- Ira M. Gourley, associate professor of veterinary surgery and radiology, October 7, 1968.
- Donald L. Graf, professor of geology and geophysics, June 15, 1969, to accept a position at the University of Illinois.
- Walter T. Graves, associate professor of civil engineering and hydraulics, June 15, 1969.
- Evelyn L. Grovom, assistant professor of social sciences, Duluth, August 9, 1968, to accept a position at Moorhead State College.
- George A. Hallenbeck, professor of surgery, Mayo Graduate School of Medicine, December 31, 1968.
- Morton Hamermesh, head and professor, School of Physics and Astronomy, June 15, 1969, to accept a position at the State University of New York.

- Charles C. Hanna, chairman and assistant professor, Division of Education, Morris, June 15, 1969, to accept a position at Western Illinois State College.
- Roger K. Hanson, chief and assistant professor, Library Reference Services, May 29, 1969, to become director of the library at the University of North Dakota.
- William F. Hartman, assistant professor of aeronautics and engineering mechanics, June 15, 1969, to accept a position at Johns Hopkins University.
- Mary L. Hayden, assistant professor, Student Counseling Bureau, September 15, 1968, to accept a position at Springfield College.
- Maria E. Hermitte, assistant professor of anthropology, March 15, 1969.
- Lydia M. Hinckley, assistant professor and psychiatric social worker, University Health Service, June 15, 1969.
- Albert R. Johnson, assistant professor of humanities, Morris, June 15, 1969.
- Gerhard J. Joseph, associate professor of English, July 15, 1968, to accept a position at Hunter College.
- Richard S. Juralewicz, assistant professor of business administration, June 15, 1969, to accept a position at Worcester Polytechnic Institute.
- Charles S. Kahane, assistant professor of mathematics, June 15, 1969.
- Everett T. Keach, Jr., associate professor of elementary education, July 20, 1968, to accept a position at the University of Georgia.
- John A. Kelingos, assistant professor of mathematics, June 15, 1969, to accept a position at Vanderbilt University.
- Paul R. Knowles, associate professor of music, September 15, 1968, to accept a position at Louisiana State University.
- Norman C. Laws, assistant professor of education and psychology, Duluth, June 15, 1969, to accept a position at Chicago State College.
- Prabodh T. Lele, assistant professor of mechanical engineering, June 15, 1969, to accept a position with the Western Electric Engineering Research Center.
- Paul R. Lipscomb, professor of surgery, Mayo Graduate School of Medicine, January 31, 1969.
- Lois A. Lund, assistant director and associate professor, School of Home Economics, December 31, 1968, to accept a position as director, School of Home Economics, Ohio State University.
- Harold R. Marquardt, director and assistant professor, Student Housing Bureau, August 15, 1968, to accept a position at Millikin University.
- Amedeo S. Marrazzo, professor of pharmacology, April 30, 1969, to accept a position at the University of Missouri.
- Gareth B. Matthews, associate professor of philosophy, June 15, 1969, to accept a position at the University of Massachusetts.
- Hugh J. McCardle, assistant director and assistant professor, Student Loans and Scholarships and education, September 30, 1968, to accept a position at Radford College.
- Andrew R. McFarland, assistant professor of mechanical engineering, March 15, 1969, to accept a position with the Environmental Research Corporation, St. Paul.
- Paul E. McGhee, assistant professor of social sciences, Morris, June 15, 1969.
- Jeffrie G. Murphy, assistant professor of philosophy, August 24, 1968, to accept a position at the University of Arizona.
- Frank B. Murray, assistant professor of educational psychology, June 15, 1969.
- Mohammed A. Najmi, assistant professor of sociology, June 15, 1969.
- Clifford L. Nelson, assistant professor of agricultural education, January 31, 1969, to accept a position at the University of Maryland.
- Doris E. Nelson, assistant professor, Southern School of Agriculture, April 15, 1969.
- Noel W. Olson, assistant professor of education, Morris, June 15, 1969, to accept a position at St. Cloud State College.
- Willard L. Oplinger, assistant professor of humanities, Duluth, June 15, 1969.
- Clayton R. Osland, assistant professor of education, Crookston, June 15, 1969, to do graduate work at the University of Minnesota.
- John S. Pearson, associate professor of clinical psychology, June 30, 1969, to accept a position on the staff of the Wichita Clinic.
- Perti J. Pelto, associate professor of anthropology, June 15, 1969, to accept a position at the University of Connecticut.

- Allan L. Pennington, assistant professor of business administration, June 15, 1969, to accept a position at the University of Tennessee.
- Janis Priedkalns, assistant professor of veterinary anatomy, June 30, 1969.
- William E. Ramey, assistant to the director and assistant professor, Bureau of Recommendations and Placement Inquiries Clearance Office, June 30, 1969, to accept a position with the firm of Michael DeMann, Inc.
- Robert I. Rence, assistant professor of humanities, Duluth, July 20, 1968, to accept a position at Rutgers University.
- Hannes Risken, associate professor of electrical engineering, December 15, 1968, to return to Germany.
- Franz L. Roehmann, assistant professor of music education, June 15, 1969.
- Joseph G. Rosenstein, assistant professor of mathematics, June 15, 1969, to accept a position at Rutgers University.
- Harold Ruben, professor of statistics, June 15, 1969.
- Darrett B. Rutman, associate professor of history, July 20, 1968, to accept a position at the University of New Hampshire.
- Burton Sapin, professor of political science, June 15, 1969, to become dean of the School of Public and International Affairs at George Washington University.
- Charles C. Savage III, director and assistant professor, University Art Gallery, June 16, 1969, to accept a position as curator of the St. Louis Art Museum.
- Arthur E. Smith, director and associate professor, Student Counseling Bureau and educational psychology, October 23, 1968, to accept a position with the American College Testing Program (Iowa City, Iowa).
- Richard E. Stallard, professor of dentistry, August 31, 1968, to become associate director of the Eastman Dental Dispensary.
- David A. Stetler, assistant professor of botany, June 15, 1969, to accept a position at Dartmouth College.
- Paul E. Strandjord, associate professor of laboratory medicine, June 30, 1969, to accept a position at the University of Washington.
- Gertrude Strinden, assistant professor, Southern School of Agriculture, April 15, 1969, to pursue graduate study at the University of Minnesota.
- Dorothy E. Titt, assistant professor of nursing, August 24, 1968.
- R. Stuart Tobias, professor of chemistry, June 15, 1969, to accept a position at Purdue University.
- Robert E. Turner, assistant professor of information and agricultural journalism, June 30, 1969.
- W. Ronald Osborne, assistant professor of animal science, June 7, 1969, to accept a position at the University of Guelph.
- Thomas H. Walz, assistant professor of social work, June 30, 1969.
- William R. Webber, associate professor of physics, June 15, 1969, to accept a position at the Space Science Center, University of New Hampshire.
- Elizabeth A. Whitney, assistant professor of nursing, September 15, 1968.
- Ralph C. Williams, Jr., professor of medicine, May 31, 1969, to accept a position at the University of New Mexico.
- William L. Zwerman, assistant professor of sociology, June 15, 1969, to accept a position at the University of Calgary.

Terminations, 1969-1970

- Harold J. Alford, director and associate professor, Department of Independent Study, August 31, 1969, to become director of continuing education and summer school at Kansas State University.
- Austin G. Anderson, associate dean, director, and associate professor, Law School and Continuing Legal Education, February 27, 1970.
- Loren N. Argabright, assistant professor of mathematics, June 15, 1970.
- Rachel V. Baumer, chairman and associate professor, Department of South Asian Languages, June 15, 1970, to accept a position at the University of Hawaii.
- Robert F. Berkhofer, Jr., associate professor of history, July 19, 1969, to accept a position at the University of Wisconsin.
- James R. Bolton, associate chairman and professor, Department of Chemistry, June 15, 1970, to accept a position at the University of Western Ontario.

- Theodore W. Clymer, professor of elementary education, June 15, 1970, to return with different responsibilities, fall quarter 1970.
- Jacques C. Comeaux, assistant professor of humanities, Duluth, June 15, 1970.
- James R. Dawson, head and professor, Department of Pathology, June 15, 1970, to accept a position as professor of pathology at the University of Mississippi.
- Evelyn N. Deno, director and professor, Psycho-Educational Center, June 15, 1970.
- Kenneth N. DeYoung, associate professor of education and psychology, Duluth, August 22, 1969.
- Jan D. Duker, director and professor, School Psychology, June 30, 1970.
- Franklin H. Ellis, Jr., professor of surgery, Mayo Graduate School of Medicine, September 30, 1969, to become chief, cardiovascular surgery, Lehey Clinic, Boston, Mass.
- Arnold N. Enker, professor of law, April 30, 1970, to become dean of a new law school in Jerusalem, Israel.
- Bill C. Fitch, head basketball coach and assistant professor of intercollegiate athletics and physical education for men, March 31, 1970, to accept a position with a professional basketball team in Cleveland, Ohio.
- Edward W. Francel, professor of social work, November 15, 1969, to become director of the Educational Services Division, New York Council on Social Work Education.
- Harry Friedman, assistant professor of science and mathematics, Morris, June 15, 1970, for medical reasons due to climate.
- Erhard M. Friedrichsmeyer, associate professor of German, July 17, 1970, to accept a position at the University of Cincinnati.
- Edna L. Fritz, professor of nursing, June 30, 1970.
- Barbara P. Hibyan, assistant professor of nursing, June 15, 1970, to accept a position at Northwestern Hospital.
- Richard Hong, professor of pediatrics, September 15, 1969, to accept a position at the University of Wisconsin.
- Jack S. Huang, assistant professor of electrical engineering, September 15, 1969, to accept a position with Honeywell, Inc.
- Rolf E. Huff, assistant professor of science and mathematics, Duluth, June 15, 1970.
- Benton N. Jamison, associate professor of mathematics, June 15, 1970, to accept a position at the State University of New York.
- James J. Jezeski, professor of food science and industries, December 12, 1969, to accept a position at Montana State University.
- George G. Kroenlein, assistant professor of music, June 15, 1970.
- Klaus P. Lange, associate professor of electrical engineering, August 15, 1969, to accept a position at Der Technischen Hochschule, München, Germany.
- Joseph Lerner, professor of biochemistry, August 31, 1969, to accept a position at the University of Virginia.
- Elmer W. Learn, director of planning, executive assistant to the President, and professor, Office of the President, August 31, 1969, to accept a position as executive vice chancellor, University of California at Davis.
- Lawrence L. Lee, assistant professor of aerospace engineering and mechanics, June 15, 1970.
- Osgood T. Magnuson, associate professor and assistant state leader of 4-H and youth development, Agricultural Extension Service, January 15, 1970, to accept a position with the Lutheran Council of the U.S.A.
- Richard Magraw, professor of social medicine and psychiatry, August 31, 1969, to accept a position at the University of Illinois.
- Helmut K. Mangold, professor of biochemistry, Hormel Institute, December 8, 1969, to become director, Deutsche Gesellschaft für Fettwissenschaft, Münster, Germany.
- Scott G. McNall, assistant professor of sociology, June 15, 1970, to accept a position as associate professor at Arizona State University.
- Edmund M. Miller, assistant to the director and assistant professor, Bureau of Recommendations, May 29, 1970, to accept a position as higher education specialist, Department of Education, Harrisburg, Pa.
- Norman Miller, professor of psychology, June 15, 1970, to accept an appointment at the University of Southern California.

- Daniel C. Neale, professor of educational psychology, June 15, 1970, to accept a position at the University of Delaware.
- Verna M. Ness, assistant professor of humanities, Morris, June 15, 1970.
- Frederick H. Ollerman, assistant professor of humanities, Duluth, June 15, 1970, to pursue studies.
- Frank W. Owens, assistant professor of mathematics, August 12, 1969, to accept a position at Ball State University.
- Scott S. Pauley, professor of forestry, April 18, 1970.
- Jack L. Pulec, assistant professor of otolaryngology, Mayo Graduate School of Medicine, August 31, 1969.
- Robert Rhea, assistant professor of genetics and cell biology, June 15, 1970.
- Lyle D. Schmidt, associate professor of educational psychology, July 19, 1969, to accept a position at Ohio State University.
- Helmut J. Schweiger, head and associate professor, Division of Humanities, Duluth, June 15, 1970.
- Bruce D. Sillers, assistant professor, Student Personnel Office, August 31, 1969, to accept a position at Bucknell University.
- Robert C. Sine, assistant professor of mathematics, July 19, 1969, to accept a position at the Control Data Corporation.
- Hugo F. Sonnenschein, professor of economics, June 15, 1970, to accept an appointment at the University of Massachusetts.
- John Thut, associate professor of music, June 15, 1970.
- John Ulrich, associate professor of microbiology, Mayo Graduate School of Medicine, November 2, 1969, to accept a position at the University of New Mexico.
- Mario A. Volpe, assistant professor of studio arts, June 15, 1970, to devote more time to his art work.
- E. Theodor Voss, associate professor of German, August 23, 1969, to accept a position at Columbia University.
- Lemen J. Wells, professor of anatomy, September 15, 1969, due to disability.
- Frederick M. Williams, associate professor of zoology, June 15, 1970.
- Joseph P. Zesbaugh, assistant professor of humanities, Duluth, August 31, 1969, to accept a position at Arizona State University.

Appointments, 1968-1969

- Martin E. Abel as professor of agricultural economics
B.S. 1956, Cornell University; Ph.D. 1961, University of Minnesota
- Yusuf J. Abul-Hajj as assistant professor of pharmacy
B.S. 1962, M.Sc. 1964, American University of Beirut; Ph.D. 1968, University of Wisconsin
- Frank R. Akehurst as assistant professor of Romance languages
B.A. 1962, M.A. 1965, Oxford University; Ph.D. 1967, University of Colorado
- Gary F. Alkire as assistant professor of educational administration
B.S. 1962, M.A. 1964, Northern Michigan University; Ed.D. 1968, Michigan State University
- Chester G. Anderson as professor of English
M.A. 1948, University of Chicago; Ph.D. 1962, Columbia University
- Eugene M. Anderson as assistant professor of clinical experiences
B.S. 1958, Illinois State Normal University; M.S. 1962, Ed.D. 1968, University of Illinois
- Richard B. Arnaud as assistant professor of philosophy
B.A. 1964, University of Rochester; M.A. 1967, Ph.D. 1968, Brown University
- Thomas G. Bender as assistant professor of architecture
B.Arch. 1965, Miami University; M.Arch. 1968, University of Pennsylvania
- Frederick G. Bergsrud as assistant professor and area extension irrigation engineer, agricultural engineering and Agricultural Extension Service
B.A. 1960, University of Minnesota; M.S. 1968, Kansas State University
- Daniel R. Bes as associate professor of physics
Licenciado 1954, University of Buenos Aires
- Edieann F. Biesbrock as assistant professor of elementary education
B.S. 1962, Utah State University; M.Ed. 1966, Ed.D. 1968, University of Georgia

- Howard L. Bissonette as professor and extension plant pathologist, plant pathology and Agricultural Extension Service
B.S. 1952, St. Thomas College; M.S. 1956, Ph.D. 1963, University of Minnesota
- Vernon M. Bloom as assistant professor of social work
B.A. 1956, M.S.W. 1959, University of Minnesota
- Robert H. Bruininks as assistant professor of special education
B.S. 1964, Western Michigan University; M.A. 1965, Ph.D. 1968, Peabody College
- William H. Burke as assistant professor of animal science
B.S. 1961, M.S. 1963, University of Wisconsin; Ph.D. 1968, University of California
- Dwight A. Burkhardt as assistant professor of psychology
B.S. 1960, M.Opt. 1961, Indiana University; Ph.D. 1965, Brown University
- Laurence J. Cahill, Jr., as director and professor, Space Science Center and physics
B.S. 1946, U.S. Military Academy; B.S. 1950, University of Chicago; M.S. 1956, Ph.D. 1959, University of Iowa
- Bo R. Casserberg as assistant professor of science and mathematics, Duluth
B.Phys. 1964, University of Minnesota; Ph.D. 1968, Princeton University
- John P. Clark as associate professor of sociology
B.S. 1949, M.S. 1957, Ph.D. 1960, Ohio State University
- Shirley M. Clark as assistant professor of history and philosophy of education
B.A. 1957, M.A. 1958, Bowling Green State University; Ph.D. 1961, Ohio State University
- Thomas S. Clayton as associate professor of English
B.A. 1954, University of Minnesota; D.Phil. 1960, Wadham College (Oxford University)
- William D. Coulson as assistant professor of classics
B.A. 1964, Trinity College; M.A. 1966, Ph.D. 1968, Princeton University
- Buddy G. Crewdson as assistant professor and extension specialist, Agricultural Extension Service
B.S. 1958, Morningside College; M.S. 1966, University of Minnesota
- David G. Darby as assistant professor of science and mathematics, Duluth
B.S. 1959, M.S. 1961, Ph.D. 1964, University of Michigan
- Anthony R. deSouza as assistant professor of geography
B.A. 1965, Ph.D. 1968, Reading University
- Arthur K. Ellis as assistant professor of elementary education
B.S. 1962, M.S. 1964, Oregon College of Education; Ed.D. 1968, University of Oregon
- George W. England as professor of industrial relations
B.A. 1951, M.A. 1952, Ph.D. 1956, University of Minnesota
- Sen Fan as assistant professor of science and mathematics, Morris
B.S. 1954, Taiwan Normal University; M.S. 1961, University of Illinois
- Edward L. Farmer as assistant professor of history
B.A. 1957, Stanford University; M.A. 1962, Ph.D. 1968, Harvard University
- John Ferguson as professor of classics
B.A. 1942, M.A. 1947, St. John's College (Cambridge); B.D. 1944, University of London
- Frederick Forro, Jr., as head and professor, Department of Genetics and Cell Biology
M.D. 1949, Yale University
- Elwin E. Fraley as director and professor, Division of Urology and surgery
A.B. 1957, Princeton University; M.D. 1961, Harvard University Medical School
- John W. Frost as professor of medicine
M.D. 1944, University of Pennsylvania
- Arthur I. Geffen as assistant professor of English
A.B. 1952, A.M. 1955, Ph.D. 1968, University of Chicago
- Douglas J. Gerrard as assistant professor of forestry
B.Sc. 1960, M.Sc. 1963, University of Toronto; Ph.D. 1968, Michigan State University
- Hillel H. Gershenson as associate professor of mathematics
B.A. 1955, M.A. 1957, University of Wisconsin; Ph.D. 1961, University of Chicago

- Donald E. Gilbertson as assistant professor of zoology
B.S. 1959, Wisconsin State College; M.S. 1962, South Dakota State University; Ph.D. 1966, University of Cincinnati
- John M. Gleason as assistant professor of classics
B.A. 1963, Columbia College; Ph.D. 1969, Harvard University
- Joseph A. Glick as associate professor of child development
B.A. 1956, Brandeis University; M.A. 1959, Ph.D. 1964, Clark University
- Dorothy E. Greb as assistant professor and psychiatric social worker, social work and University Health Service
B.A. 1943, M.A. 1945, University of Minnesota
- Liselotte Gumpel as assistant professor of humanities, Morris
B.A. 1964, San Francisco State College; M.A. 1966, Ph.D. 1968, Stanford University
- J. Woods Halley, Jr., as associate professor of physics
B.S. 1961, Massachusetts Institute of Technology; Ph.D. 1965, University of California
- Harlan S. Hansen as assistant professor of elementary education
B.S. 1956, M.S. 1964, Ph.D. 1966, University of Wisconsin
- Raymond Hendler as assistant professor of studio arts
Certificate 1951, Academie Grand Chaumiere
- Herbert I. Hochberg as professor of philosophy
B.A. 1950, M.A. 1951, Wayne State University; Ph.D. 1959, University of Iowa
- Philip T. Hopmann as assistant professor of political science
B.A. 1964, Princeton University; M.A. 1965, Ph.D. 1969, Stanford University
- Matthew J. Huber as associate professor of civil engineering and hydraulics
B.C.E. 1945, Marquette University; M.S.C.E. 1950, Michigan State University; Eng.D. 1968, Yale University
- Harry S. Jacob as associate professor of medicine
B.A. 1954, Reed College; M.D. 1958, Harvard University Medical School
- Wayne A. Jesswein as assistant professor of social sciences, Duluth
B.A. 1963, Southern Illinois University; M.A. 1965, Ph.D. 1969, University of Illinois
- Roger T. Johnson as assistant professor of elementary education
B.S. 1960, M.A. 1962, Ball State University; Ed.D. 1969, University of California
- Arvo Kallio as associate professor and area extension horticulturist, horticulture and Agricultural Extension Service, Duluth
B.S. 1942, M.S. 1947, Ph.D. 1959, University of Minnesota
- Matti E. Kaups as associate professor of social sciences, Duluth
B.A. 1959, University of California; M.S. 1960, University of Wisconsin; Ph.D. 1966, University of Minnesota
- Thomas Kelly as assistant professor of history
B.A. 1958, Pennsylvania State University; M.A. 1959, Ph.D. 1964, University of Illinois
- Bart Keoppen as associate professor of law
B.A. 1956, University of Oregon; LL.B. 1962, Stanford University
- Larry L. Kinney as assistant professor of electrical engineering
B.S. 1964, M.S. 1965, Ph.D. 1968, University of Iowa
- Willard L. Koukkari as assistant professor of botany
B.S. 1957, M.S. 1959, Michigan State University; Ph.D. 1962, University of New Hampshire
- George G. Kroenlein as assistant professor of music
Minneapolis College of Music; Hochschule fur Musik (Berlin)
- Odin M. Langsjoen as assistant professor of dentistry
B.A. 1943, Gustavus Adolphus College; D.D.S. 1950, University of Minnesota
- James A. Libby as assistant professor and extension meat hygienist, veterinary microbiology and public health and Agricultural Extension Service
B.S. 1957, D.V.M. 1959, University of Minnesota; M.Sc. 1966, Ohio State University
- Claude M. Lightner as assistant professor of English
B.A. 1957, University of Wyoming; M.A. 1959, University of Chicago; Ph.D. 1968, University of Illinois

- Dean A. Lund as assistant director and assistant professor, Municipal Reference Bureau, General Extension Division
B.B.A. 1950, M.A. 1954, University of Minnesota
- Andrew MacLeish as associate professor of English
A.B. 1950, Roosevelt University; M.A. 1951, University of Chicago; Ph.D. 1961, University of Wisconsin
- Kenneth Macleod as associate professor of public health
M.B., Ch.B. 1935, University of Edinburgh; M.P.H. 1950, University of Michigan
- Vincent R. Magnuson as assistant professor of science and mathematics, Duluth
B.S. 1963, University of Nebraska; M.S. 1965, University of Wisconsin; Ph.D. 1968, University of Illinois
- Wilbur R. Maki as professor of agricultural economics
B.A. 1948, M.A. 1949, University of Michigan; M.S. 1954, Ph.D. 1956, Iowa State University
- John C. Masters as assistant professor of child development
A.B. 1963, Harvard College; Ph.D. 1967, Stanford University
- Paul E. McGhee as assistant professor of social sciences, Morris
B.A. 1963, Oakland University; M.A. 1965, Bucknell University; Ph.D. 1968, Ohio State University
- John P. Moran as assistant professor of aeronautics and engineering mechanics
B.M.E. 1959, M.Aero.E. 1960, Ph.D. 1965, Cornell University
- Kenneth G. Nelson as assistant professor of pharmaceuticals
B.S. 1963, University of Wisconsin; M.S. 1964, Ph.D. 1968, University of Michigan
- James W. Nordstrom as assistant professor of animal science
B.S. 1957, M.S. 1961, Ph.D. 1964, University of Minnesota
- John B. O'Leary as associate professor of family practice and community health
B.S. 1947, M.B. 1950, M.D. 1951, University of Minnesota
- Michael D. Perlman as assistant professor of statistics
B.S. 1963, California Institute of Technology; M.S. 1965, Ph.D. 1967, Stanford University
- John M. Phin as associate director and assistant professor, Program in Hospital Administration and public health
M.D. 1955, University of Toronto; M.H.A. 1963, University of Minnesota
- Irene M. Pieper as assistant professor of speech, communication, and theatre arts
B.A. 1962, University of California; M.A. 1966, San Francisco State College
- Donald L. Piermattei as professor of veterinary surgery and radiology
B.S. 1953, D.V.M. 1954, M.S. 1960, Michigan State University; Ph.D. 1969, Colorado State University
- Harold A. Pressman as assistant professor of dentistry
D.D.S. 1941, University of Minnesota; M.S. 1959, State University of Iowa
- Peter J. Reed as assistant professor of English
B.A. 1960, University of Idaho; M.A. 1962, Ph.D. 1965, University of Washington
- Phyllis C. Reynolds as assistant professor and mental hygienist, psychiatry and University Health Service
B.A. 1962, Ph.D. 1966, University of Minnesota
- Betty W. Robinett as professor of linguistics
A.B. 1940, Wayne State University; A.M. 1941, Ph.D. 1951, University of Michigan
- Herman Rowan as associate professor of studio arts
B.S. 1950, Kansas State Teachers College; M.F.A. 1952, State University of Iowa
- William L. Rowe as professor of anthropology and South Asian language and area studies
B.A. 1949, Occidental College; Cert. in Social Welfare 1950, University of California; Ph.D. 1960, Cornell University
- Robert F. Roy as associate professor of geology and geophysics
B.A. 1952, M.A. 1961, Ph.D. 1963, Harvard University
- E. Terrence Rust as assistant professor of humanities, Duluth
B.M. 1962, M.F.A. 1964, University of Iowa

- Frank L. Ryan as assistant professor of elementary education
B.S. 1957, University of Santa Clara; M.A. 1964, San Diego State College; Ed.D. 1966, University of California
- Robert L. Schreiner as assistant professor of elementary education and educational psychology
B.A. 1955, Colorado State College; M.A. 1963, Ph.D. 1968, University of Iowa
- John J. Sciarra as head and professor, Department of Obstetrics and Gynecology
B.S. 1953, Yale University; M.D. 1957, Ph.D. 1963, Columbia University
- Warren F. Shaffer as assistant professor of educational psychology
B.A. 1958, Harvard College; M.A. 1966, Ph.D. 1968, Columbia University
- Judson D. Sheridan as assistant professor of zoology
B.S. 1961, Hamline University; Ph.D. 1965, Oxford University
- Fred K. Skousen as assistant professor of business administration
B.A. 1965, Brigham Young University; M.S. 1966, Ph.D. 1968, University of Illinois
- Ross D. Smith as professor of speech, communication, and theatre arts and consultant on cultural affairs, Academic Administration
B.A. 1937, University of Iowa; M.A. 1942, University of Minnesota; Ph.D. 1949, University of Utah
- Margaret N. Space as associate director and assistant professor, Student Housing Bureau, Office of the Dean of Students
B.S. 1936, M.A. 1952, Ph.D. 1964, University of Minnesota
- Charles E. Speaks as associate professor of speech, communication, and theatre arts
B.S. 1957, M.A. 1958, Ohio University; Ph.D. 1963, University of Michigan
- George M. Speers as assistant professor of animal science
B.S. 1963, M.S. 1965, Ph.D. 1968, Iowa State University
- Lawrence A. Sroufe as assistant professor of child development
B.A. 1963, Whittier College; M.S. 1965, Ph.D. 1967, University of Wisconsin
- E. John Staba as professor of pharmacy
B.S. 1952, St. John's University (New York); M.S. 1954, Duquesne University; Ph.D. 1957, University of Connecticut
- Robert E. Stucker as assistant professor of agronomy and plant genetics
B.S. 1959, Iowa State University; M.S. 1961, Purdue University; Ph.D. 1966, North Carolina State University
- William D. Sudderth as assistant professor of statistics
B.S. 1963, Yale University; M.A. 1965, Ph.D. 1967, University of California
- Edwin C. Thiede as assistant professor of electrical engineering
B.S.E.E. 1959, University of Wisconsin; M.S.E. 1964, University of California; Ph.D. 1968, Stanford University
- Yi-Fu Tuan as professor of geography
B.A. 1951, M.A. 1955, University of Oxford; Ph.D. 1957, University of California
- James C. Vanden Berge as assistant professor of veterinary anatomy
B.A. 1957, Calvin College; M.S. 1960, Michigan State University; Ph.D. 1966, Washington State University
- John E. Verby as associate professor of family practice and community health
B.A. 1944, Carleton College; M.D. 1948, University of Minnesota
- Charles E. Walcott as assistant professor of political science
B.A. 1964, Occidental College; M.A. 1965, Ph.D. 1968, University of California
- George T. Wright as professor of English
B.A. 1946, M.A. 1947, Columbia University; Ph.D. 1957, University of California
- Albert Yonas as assistant professor of child development
B.A. 1964, University of Michigan; Ph.D. 1968, Cornell University

Appointments, 1969-1970

- Ronald E. Anderson as assistant professor of sociology
B.A. 1962, La Sierra College; M.A. 1966, Ph.D. 1970, Stanford University

- Sabra S. Anderson as assistant professor of science and mathematics, Duluth
A.B. 1961, Smith College; M.A. 1963, Ed.D. 1968, University of Michigan
- Terrance A. Anderson as assistant professor of humanities, Morris
B.M.E. 1958, M.M. 1961, University of Wisconsin; Ph.D. 1968, University of Iowa
- Theodore R. Anderson as professor of sociology
B.S. 1948, University of Minnesota; M.S. 1951, Ph.D. 1953, University of Wisconsin
- Ronald E. Barnett as assistant professor of chemistry
B.A. 1965, University of Colorado; Ph.D. 1969, Brandeis University
- Michael J. Barrett as assistant professor of business administration
B.S., B.A. 1961, Rockhurst College; M.S. 1962, University of Kansas; D.B.A. 1968, University of Colorado
- William M. Bart as assistant professor of educational psychology
B.S. 1965, Loyola University; M.A. 1967, Ph.D. 1969, University of Chicago
- Victor A. Bloomfield as associate professor of biochemistry
B.S. 1959, University of California; Ph.D. 1962, University of Wisconsin
- Philip Blume as acting director and assistant professor, Department of Laboratory Medicine and clinical chemistry
B.S. 1960, M.D. 1964, Yale University
- George W. Bohrnstedt as associate professor of sociology
B.S. 1960, M.S. 1963, Ph.D. 1966, University of Wisconsin
- John E. Brandl as director and associate professor, School of Public Affairs
B.A. 1959, St. John's University; M.A. 1962, Ph.D. 1963, Harvard University
- Mark L. Brenner as assistant professor of horticultural science
B.S. 1964, M.S. 1965, University of Massachusetts; Ph.D. 1969, Michigan State University
- Robert G. Bryant as assistant professor of chemistry
A.B. 1965, Colgate University; Ph.D. 1969, Stanford University
- Gene A. Burd as assistant professor of journalism and mass communication
B.A. 1953, M.S. 1954, University of California; Ph.D. 1964, Northwestern University
- Sidney E. Buttrill, Jr., as assistant professor of chemistry
B.S. 1966, Massachusetts Institute of Technology; Ph.D. 1969, Stanford University
- Peter N. Carroll as associate professor of history
B.A. 1964, Queens College; M.A. 1967, Ph.D. 1968, Northwestern University
- Hale Champion as vice president for planning and operations and professor
B.A. 1952, Stanford University
- John J. Cogan as assistant professor of elementary education
B.S. 1963, Kent State University; M.A. 1965, Ph.D. 1969, Ohio State University
- Joseph J. Comprone as assistant professor of humanities, Morris
B.A. 1965, Springfield College; M.A. 1967, Ph.D. 1969, University of Massachusetts
- Eva L. Dillin as assistant professor of physical education for women
B.S. 1953, Taylor University; M.A. 1957, Michigan State University
- Andrew A. Duncan as head and professor, Department of Horticultural Science
B.S. 1950, M.S. 1952, Ph.D. 1956, University of Maryland
- Howard I. Epstein as assistant professor of civil engineering and hydraulics
B.C.E. 1963, Cooper Union; M.S. 1965, Ph.D. 1967, Northwestern University
- Irving E. Fang as associate professor of journalism and mass communication
B.A. 1951, M.S. 1960, Ph.D. 1966, University of California
- Caesar E. Farah as professor of Middle Eastern languages
B.A. 1952, Stanford University; M.A. 1955, Ph.D. 1957, Princeton University
- George B. Flamer as assistant professor of social sciences, Morris
B.S. 1961, North Dakota State University; M.A. 1964, Ph.D. 1965, University of Minnesota
- Roger L. Fosdick as professor of aerospace engineering and mechanics
B.S. 1959, Illinois Institute of Technology; Ph.D. 1963, Brown University
- Louis D. Frenzel, Jr., as professor of entomology, fisheries, and wildlife
B.S. 1947, M.S. 1948, North Texas State University; Ph.D. 1957, University of Minnesota

- Robert C. Gast as associate professor of soil science
B.S. 1953, M.S. 1955, Ph.D. 1959, University of Missouri
- Ronald R. Gauger as assistant professor of humanities, Duluth
B.S. 1960, M.S. 1961, M.M. 1965, Ph.D. 1970, University of Wisconsin
- Abdollah Hadian as assistant professor of statistics
B.S. 1957, University of Teheran; M.S. 1963, Ph.D. 1969, University of Minnesota
- Daniel L. Hartl as assistant professor of genetics and cell biology
B.S. 1965, Ph.D. 1968, University of Wisconsin
- William Hausman as head and professor, Department of Psychiatry
M.D. 1947, Washington University
- Jerry D. Hawton as assistant professor and extension swine nutritionist, animal science and Agricultural Extension Service
B.S. 1964, M.S. 1968, Ph.D. 1970, University of Minnesota
- Everett H. Heath as assistant professor of veterinary anatomy
B.A. 1958, Swarthmore College; V.M.D. 1962, University of Pennsylvania; M.S. 1964, Purdue University; Ph.D. 1969, University of Pennsylvania
- David A. Heiberg as assistant professor and mental hygienist, psychology and Health Service
B.A. 1960, Ph.D. 1968, University of Minnesota
- Vernon L. Hendrix as professor of educational administration
B.M. 1955, Texas Christian University; M.M. 1956, Ph.D. 1962, University of Texas
- Robert M. Hexter as chairman and professor, Department of Chemistry
B.A. 1948, University of Minnesota; M.A. 1950, Ph.D. 1952, Columbia University
- Arne W. Hovin as professor of agronomy and plant genetics
B.S. 1949, Agricultural College of Norway; Ph.D. 1957, University of California
- Kenneth R. Howey as assistant director and assistant professor, Department of Clinical Experiences
B.A. 1960, Northwestern College; M.A. 1964, Ph.D. 1968, University of Wisconsin
- John B. Hughes as professor of Spanish and Portuguese
A.B. 1949, A.M. 1951, Ph.D. 1953, Princeton University
- Thomas J. Hummel as assistant professor, Student Personnel Office
B.S. 1964, M.Ed. 1966, Ph.D. 1969, Ohio University
- Jackson R. Huntley as assistant professor of humanities, Duluth
B.S. 1961, Wisconsin State University; M.A. 1962, Kent State University
- Oscar H. Ibarra as assistant professor of computer, information, and control sciences
B.S. 1962, University of the Philippines; M.S. 1965, Ph.D. 1967, University of California
- Henry J. Jeronimus as director and assistant professor, Health Service, Duluth
B.A. 1934, Carleton College; M.D. 1938, University of Minnesota
- Carl R. Jessen as assistant professor of veterinary surgery and radiology
B.S. 1954, D.V.M. 1956, Ph.D. 1969, University of Minnesota
- Donald W. Johnson as professor of veterinary medicine
B.S. 1951, D.V.M. 1953, Ph.D. 1963, University of Minnesota
- Robert L. Johnson as assistant professor, University of Minnesota Technical College, Crookston
B.S. 1960, M.S.T. 1964, Ph.D. 1969, University of North Dakota
- Virginia M. Juffer as assistant professor, General College
B.S. 1961, M.S. 1964, University of Minnesota; Ph.D. 1969, Iowa State University
- Amarlal Kalro as assistant professor of mechanical engineering
I.Sc. 1959, St. George's College, India; B.Tech. 1963, Indian Institute of Technology; M.S. 1967, University of Minnesota
- Manuel E. Kaplan as associate professor of medicine
B.S. 1950, University of Arizona; M.D. 1954, Harvard Medical School
- Roger G. Kennedy as vice president for investments and executive director of the University of Minnesota Foundation
B.A. 1949, Yale University; LL.B. 1952, University of Minnesota

- Eugene D. Larkin as professor of home economics
B.A. 1946, M.A. 1949, University of Minnesota
- David E. Larrabee, Sr., as assistant professor, University of Minnesota Technical College, Crookston
B.S. 1959, University of Maine; M.Ag.Ed. 1967, University of New Hampshire; D.Ed. 1969, Pennsylvania State University
- Stanford E. Lehmborg as professor of history
B.A. 1953, M.A. 1954, University of Kansas; Ph.D. 1956, Cambridge University
- William A. Madden as professor of English
B.A. 1947, University of Notre Dame; M.A. 1950, Xavier University; Ph.D. 1955, University of Michigan
- Kenneth G. Mann as assistant professor of biochemistry
B.S. 1963, Manhattan College; Ph.D. 1967, University of Iowa
- Frank B. Martin as assistant professor of statistics
B.A. 1958, St. Mary's College; M.S. 1965, Ph.D. 1968, Iowa State University
- Angeline R. Mastri as assistant professor of neurology
B.A. 1955, Manhattanville College; M.D. 1959, State University of New York
- David J. McLaughlin as assistant professor of botany
A.B. 1962, Brown University; Ph.D. 1968, University of California
- Carlos Mendez-Bauer as associate professor of obstetrics and gynecology
M.D. 1963, University of Uruguay
- W. Scott Meyer as assistant professor of electrical engineering
B.S. 1964, M.S.E.E. 1966, Ph.D. 1969, University of Minnesota
- George T. Milkovich as assistant professor of business administration
B.S. 1963, M.A. 1965, Ph.D. 1970, University of Minnesota
- John Modell as assistant professor of history
A.B. 1962, M.A. 1963, Ph.D. 1969, Columbia University
- Don A. Morgan as associate professor of educational administration
B.A. 1949, University of Utah; B.Ed. 1951, M.A. 1952, Washington State University; Ph.D. 1965, University of Portland
- Fred L. Morrison as associate professor of law
A.B. 1961, University of Kansas; B.A. 1963, M.A. 1968, Oxford University; M.A. 1965, Ph.D. 1966, Princeton University; J.D. 1967, University of Chicago
- Arthur E. Naftalin as professor of public affairs
B.A. 1939, M.A. 1942, Ph.D. 1948, University of Minnesota
- James L. Nelson as assistant professor of science and mathematics, Duluth
B.S. 1960, Northeast Missouri State College; M.A. 1962, Ph.D. 1968, University of Missouri
- Gwendolyn A. Newkirk as associate professor of home economics education
B.S. 1945, Tillotson College; M.A. 1946, Columbia University; Ed.D. 1961, Cornell University
- Peter J. Nicholson as assistant professor of computer, information, and control sciences
B.S. 1964, M.S. 1965, Dalhousie University; M.S., Ph.D. 1969, Stanford University
- Thomas E. Pearsall as professor of rhetoric
A.B. 1949, Colgate University; M.A. 1956, University of Texas; Ph.D. 1960, University of Denver
- Paul D. Pearson as assistant professor of elementary education
B.A. 1963, University of California at Berkeley; Ph.D. 1969, University of Minnesota
- Jerrold M. Peterson as assistant professor of social sciences, Duluth
A.B. 1962, Knox College; M.A. 1967, University of Illinois
- Juan J. Poseiro as associate professor of obstetrics and gynecology
B.S. 1943, Instituto A. Vazquez; M.D. 1951, University of Uruguay
- Rodney N. Powell as professor of pediatrics and public health
B.S. 1957, St. Joseph's College, Philadelphia; M.D. 1961, Meharry Medical College; M.P.H. 1967, University of California at Los Angeles

- Barbara K. Redman as associate professor of nursing
B.S.N. 1958, South Dakota State University; M.Ed. 1959, Ph.D. 1964, University of Minnesota
- Robert S. Redman as associate professor of dentistry
B.S. 1959, D.D.S. 1959, M.S.D. 1963, University of Minnesota; Ph.D. 1969, University of Washington
- Ira L. Reiss as director and professor, Family Study Center and sociology
B.S. 1949, Syracuse University; M.A. 1951, Ph.D. 1953, Pennsylvania State University
- Wayne H. Richter as associate professor of mathematics
B.A. 1958, Swarthmore College; M.A. 1960, Ph.D. 1963, Princeton University
- William P. Robbins as assistant professor of electrical engineering
B.S.E.E. 1963, M.S.E.E. 1965, Massachusetts Institute of Technology; Ph.D. 1969, University of Washington
- Andrew F. Robinson, Jr., as assistant professor of science and mathematics, Duluth
B.S. 1961, University of Idaho; M.A. 1967, Ph.D. 1969, Oregon State University
- Paul C. Rosenblatt as associate professor of home economics
B.A. 1958, University of Chicago; M.S. 1961, Ph.D. 1962, Northwestern University
- Irwin Rubenstein as professor of genetics and cell biology
B.S. 1953, California Institute of Technology; Ph.D. 1960, University of California
- Wilmar L. Salo as assistant professor of science and mathematics, Duluth
B.S. 1959, M.S. 1962, Ph.D. 1967, University of Minnesota
- Rolf E. Sartorius as associate professor of philosophy
B.A. 1961, University of Pennsylvania; M.A. 1963, Ph.D. 1965, Princeton University
- Marilyn Schneider as assistant professor of French and Italian
B.A. 1954, Brooklyn College; M.A. 1956, Ph.D. 1968, University of Wisconsin
- Stephen W. Schultz as assistant professor of music education
B.M.E. 1962, M.M. 1963, Ph.D. 1969, Northwestern University
- Stella B. Schulz as head and associate professor, School of Home Economics
B.S. 1939, M.S. 1942, Kansas State College; Ph.D. 1951, University of Chicago
- Terry L. Shininger as assistant professor of botany
B.A. 1963, M.A. 1964, University of Oregon; Ph.D. 1969, University of Massachusetts
- Thomas G. Shroyer as assistant professor of secondary education
B.A. 1962, B.Sc. 1965, M.A. 1967, Ph.D. 1969, Ohio State University
- Robert D. Solotaroff as assistant professor of English
B.A. 1961, University of Michigan; M.A. 1962, Ph.D. 1969, University of Chicago
- Stephan P. Spitzer as associate professor of sociology
B.A. 1957, Central Washington State College; M.S. 1960, Ph.D. 1963, University of Washington
- Thomas F. Stark as assistant professor of educational administration
B.S. 1957, University of Minnesota; M.S. 1959, Southern Illinois University; Ph.D. 1966, Michigan State University
- Neil T. Storch as assistant professor of social sciences, Duluth
B.A. 1963, Seton Hall University; M.A. 1965, University of Wisconsin
- Jean P. Swanson as assistant professor of education and psychology, Duluth
B.A. 1941, Macalester College; M.M. 1946, Northwestern University; Ph.D. 1969, University of Minnesota
- Irving Tallman as associate professor of sociology
A.B. 1948, University of California; M.S.W. 1950, Wayne State University; Ph.D. 1963, Stanford University
- Michael J. Till as associate professor of pediatric dentistry
B.A. 1954, Loras College; D.D.S. 1961, M.S. 1963, University of Iowa; Ph.D. 1970, University of Pittsburgh
- Donald G. Truhlar as assistant professor of chemistry
B.A. 1965, St. Mary's College; Ph.D. 1969, California Institute of Technology
- Dennis D. Warnes as assistant professor, West Central School and Experiment Station, Morris
B.Sc. 1955, North Dakota State College; M.Sc. 1960, University of Minnesota; Ph.D. 1969, University of Nebraska

- Albert M. Weissman as assistant professor of dentistry
D.D.S. 1965, Howard University; Certificate 1969, Boston University
- Wayne W. Welch as assistant professor of educational psychology
B.S. 1956, LaCrosse State College; M.S. 1960, University of Pennsylvania; M.S. 1963, Purdue University; Ph.D. 1966, University of Wisconsin
- David K. Wildung as assistant professor, North Central School and Experiment Station, Grand Rapids
B.S. 1963, Iowa State University; M.S. 1968, Ph.D. 1970, University of Minnesota
- Robert L. Witte as assistant professor and counselor, General College
B.S. 1956, Wisconsin State University; M.S. 1966, Ph.D. 1966, University of Wisconsin
- Harold L. York as assistant professor of aeronautics and engineering mechanics
Sc.B. 1964, Ph.D. 1969, Brown University
- Roger G. Young as director and assistant professor, Department of Independent Study
B.A. 1961, Kearney State College; M.Ed. 1964, University of Nebraska

Promotions and Transfers, 1968-1969

- Roland H. Abraham, acting director and professor to director and professor, Agricultural Extension Service
- Fred M. Amran, assistant professor to associate professor, literature, writing, and speech, General College
- Leroy T. Anderson, associate professor to professor, electrical engineering
- Gary M. Andrew, assistant professor to associate professor, quantitative analysis
- Corwin L. Atwood, instructor to assistant professor, statistics
- Frederic N. Bailey, assistant professor to associate professor, electrical engineering
- Carl L. Bandt, instructor to associate professor, dentistry
- Ernest E. Banttari, assistant professor to associate professor, plant pathology
- Benjamin F. Bayman, associate professor to professor, physics and astronomy
- William F. Bear, associate professor to professor, agricultural engineering
- Adolph E. Beich, acting chairman and instructor to assistant professor, business, Crookston
- Frederick J. Beier, instructor to assistant professor, business administration
- Frank T. Benson, Jr., administrative assistant and associate professor to assistant dean and professor, General College and oral communication
- Henry A. Bent, associate professor to professor, chemistry
- Karl E. Bethke, instructor to assistant professor, studio arts
- Henry Blackburn, associate professor to professor, public health
- Thomas G. Boman, assistant professor to associate professor, education and psychology, Duluth
- McCollum E. Brasfield, assistant director and instructor to assistant director and assistant professor, University Hospitals and hospital administration
- Rodney A. Briggs, dean and professor to provost and professor, University of Minnesota, Morris
- Bernard L. Brock, assistant professor to associate professor, speech, communication, and theatre arts
- Bruce A. Brown, superintendent and associate professor to superintendent and professor, Cloquet Forest Research Center
- Ronald E. Brown, assistant professor to associate professor, physics and astronomy
- Ronald M. Brown, associate professor and extension training specialist to professor and extension training specialist, rhetoric and Agricultural Extension Service
- David P. Campbell, assistant director and associate professor to assistant director and professor, Student Counseling Bureau and psychology
- John P. Campbell, assistant professor to associate professor, psychology
- Donna L. Carlson, instructor and psychiatric social worker to assistant professor and psychiatric social worker, University Health Service
- Paul H. Cashman, assistant vice president and professor to vice president and professor, Office of the Vice President for Student Affairs and speech, communication, and theatre arts
- Joseph B. Chaiklin, associate professor to professor, speech, communication, and theatre arts

- Loren M. Chanin, associate professor to professor, electrical engineering
Komanduri K. Charyulu, assistant professor to associate professor, radiology
Norman L. Chervany, instructor to assistant professor, business administration
Shelley N. Chou, associate professor to professor, neurosurgery
H. Boyd Christensen, instructor to assistant professor, art, Duluth
Martin K. Christiansen, assistant professor and extension economist to associate professor and extension economist, agricultural economics and marketing
Edward M. Copeland, Jr., chairman and associate professor to chairman and professor, Department of East Asian Languages
Hans W. Courant, associate professor to professor, physics and astronomy
William M. Crockett, associate professor to professor, English, Duluth
William P. Cunningham, assistant professor to associate professor, genetics and cell biology
Helen M. Dahlstrom, instructor to assistant professor, occupational therapy
Wendell DeBoer, assistant to dean and assistant professor to assistant to dean and associate professor, College of Veterinary Medicine
Bernard J. DeRubeis, instructor to assistant professor, industrial education, Duluth
Margaret Dietz, assistant professor to associate professor, physical education for women
Jan D. Duker, director and associate professor to director and professor, School Psychological Services and educational psychology
Laddie J. Elling, associate professor to professor, agronomy and plant genetics
Robert H. Evans, instructor to assistant professor, philosophy, Duluth
Eugene B. Fabes, assistant professor to associate professor, mathematics
C. Frederick Farrell, assistant professor to associate professor, modern language, Morris
John J. Flagler, associate professor to professor, industrial relations
Thomas F. Fletcher, assistant professor to associate professor, veterinary anatomy
Edwin Fogelman, associate professor to professor, political science
Lars E. Folke, research fellow to associate professor, dentistry
Nancy Freeman, assistant to director and instructor to assistant to director and assistant professor, Library School
Esther F. Freier, associate professor and hospital chemist to professor and hospital chemist, laboratory medicine
Darrell A. Frohrib, assistant professor to associate professor, mechanical engineering
Benjamin F. Fuller, director and associate professor to head and professor, Department of Family Practice and Community Health
Donald A. Ceffen, associate professor to professor, physics and astronomy
John G. Geier, assistant professor to associate professor, dentistry
William C. Gemeinhardt, assistant professor to associate professor, education and psychology, Duluth
Eugene D. Gennaro, assistant professor to associate professor, secondary education
John L. Gergen, associate professor to professor, physics, Duluth
David L. Giese, assistant professor to associate professor, mathematical studies and research, General College
John M. Gleason, instructor to assistant professor, classics
Frederick C. Goetz, associate professor to professor, internal medicine
Marvin E. Goldberg, clinical instructor to clinical assistant professor, radiology
Nelson D. Goldberg, assistant professor to associate professor, pharmacology
Allen M. Goldman, assistant professor to associate professor, physics and astronomy
John A. Goodding, assistant director and associate professor to assistant director and professor, resident instruction, College of Agriculture, Forestry, and Home Economics
Richard D. Goodrich, assistant professor to associate professor, animal science
Irving Gottesman, associate professor to professor, psychology
Stephen G. Granger, assistant dean and associate professor to assistant provost and associate professor, University of Minnesota, Morris
John C. Gray, associate professor to professor, accounting
John C. Green, associate professor to professor, geology, Duluth
A. Jack Hafner, associate professor to professor, psychiatry and neurology
David B. Haley, assistant professor to associate professor, English

- Melvin L. Hamre, assistant professor and extension specialist to associate professor and extension specialist, animal science and poultry
- John T. Hanley, associate head and associate professor to associate head and professor, Department of Civil Engineering and Hydraulics
- J. Merle Harris, associate professor to professor, natural science and mathematics, General College
- William A. Harris, Jr., associate professor to professor, mathematics
- Donald K. Harriss, assistant professor to associate professor, chemistry, Duluth
- Nathaniel I. Hart, instructor to assistant professor, English, Morris
- Paul R. Hasbargen, associate professor and extension economist to professor and extension economist, agricultural economics and farm management
- Robert L. Heller, assistant to provost and professor to assistant provost and professor, University of Minnesota, Duluth
- John D. Helmberger, assistant professor to professor, agricultural economics
- Robert K. Herman, assistant professor to associate professor, genetics and cell biology
- Dean E. Hinmon, assistant professor to associate professor, education, Morris
- William Hoffman, assistant professor to associate professor, social work
- James F. Hogg, professor to assistant vice president and professor, Office of the Vice President for Academic Administration and law
- Richard Hong, associate professor to professor, pediatrics
- Alan B. Hooper, assistant professor to associate professor, genetics and cell biology
- Richard O. Horberg, instructor to assistant professor, rhetoric
- Dennis R. Hower, instructor to assistant professor, business studies, General College
- Mei L. Hsu, assistant professor to associate professor, geography
- John Q. Imholte, assistant dean and associate professor to acting provost and associate professor, University of Minnesota, Morris
- Naresh C. Jain, assistant professor to associate professor, mathematics
- Minerva P. Jenson, associate professor to professor, Agricultural Extension Service
- Hugo H. John, associate professor and acting station statistician to professor and acting station statistician, forestry
- David C. Johnson, assistant professor to associate professor, secondary education
- Paul E. Johnson, assistant professor to associate professor, educational psychology
- Walter H. Johnson, Jr., associate professor to professor, physics and astronomy
- James T. Joichi, assistant professor to associate professor, mathematics
- Edwin G. Joselyn, instructor to assistant professor, State-Wide Testing Program and Student Counseling Bureau
- Daniel D. Joseph, associate professor to professor, aeronautics and engineering mechanics
- William J. Kane, assistant professor to associate professor, surgery
- Stanley B. Kegler, associate dean and professor to assistant vice president and professor, Office of the Vice President for Educational Relationships and Development and education
- Kenneth H. Keller, assistant professor to associate professor, chemical engineering
- Ralph B. Kersten, clinical assistant professor to associate professor, dentistry
- Virginia M. Kivits, assistant professor to associate professor, literature, writing, and speech, General College
- Maxine Klein, assistant professor to associate professor, speech, communication, and theatre arts
- George Kliger, instructor to assistant professor, philosophy
- Dale H. Knotek, instructor to assistant professor, housing and student activities, Crookston
- Paul R. Knowles, assistant professor to associate professor, music
- David Kopf, assistant professor to associate professor, history
- John L. Kroening, assistant professor to associate professor, physics, Duluth
- Marian O. Larson, assistant professor and associate state leader to associate professor and associate state leader, 4-H and youth development, Agricultural Extension Service
- Ruth I. Larson, instructor to assistant professor, business studies, General College
- J. Clark Laundergan, instructor to assistant professor, sociology and anthropology, Duluth
- Douglas E. Lewis, assistant professor to associate professor, philosophy

- Archibald I. Leyasmeyer, assistant professor to associate professor, English
 Bernard W. Lindgren, chairman and associate professor to chairman and professor, Department of Statistics
 Merle K. Loken, associate professor to professor, radiology
 William T. MacCary, instructor to assistant professor, classics
 Walter J. Maier, assistant professor to associate professor, civil engineering and hydraulics
 William M. Marchand, assistant professor to associate professor, rhetoric
 Byron K. Marshall, assistant professor to associate professor, history
 Yosh Maruyama, assistant professor to associate professor, radiology
 John J. Mauriel, Jr., assistant professor to associate professor, management, production, and transportation
 E. Scott Maynes, associate professor to professor, economics
 Glenn T. McCleary, associate professor to professor, Agricultural Extension Service
 Philip K. Meany, instructor to assistant professor, art, Duluth
 William O. Menzhuber, instructor to supervisor and assistant professor, Plant Services, Crookston
 Jack C. Merwin, chairman and professor to assistant dean and professor, College of Education and educational psychology
 Norman G. Meyers, associate professor to professor, mathematics
 Alfred F. Michael, associate professor to professor, pediatrics
 William A. Milbrath, assistant professor and associate state leader to associate professor and associate state leader, 4-H and youth development, Agricultural Extension Service
 Frank C. Miller, assistant dean and associate professor to assistant dean and professor, Office of International Programs and anthropology
 Norman Miller, associate professor to professor, psychology
 Matthew B. Moore, instructor to associate professor, plant pathology
 Clarence E. Mueller, chairman and assistant professor to chairman and associate professor, Intramurals for Men
 Katherine Nash, associate professor to professor, studio arts
 Lydia I. Neibergs, clinical instructor and physician to clinical assistant professor and physician, ophthalmology and University Health Service
 Thomas Nelson, instructor to assistant professor, English
 Lewis H. Nosanow, associate professor to professor, physics and astronomy
 R. Norine Odland, associate professor to professor, elementary education
 Richard W. Ojakangas, assistant professor to associate professor, geology, Duluth
 Alvin W. Ollenburger, assistant professor to associate professor, education and psychology, Duluth
 Frederick H. Ollerman, instructor to assistant professor, speech, Duluth
 Clayton R. Oslund, instructor to assistant professor, education, Crookston
 James B. Overmier, assistant professor to associate professor, psychology
 Victor Perman, associate professor to professor, veterinary pathology and parasitology
 George L. Perry, associate professor to professor, economics
 Edgar A. Persons, assistant professor to associate professor, Agricultural Extension Service
 William G. Phinney, associate professor to professor, geology and geophysics
 Luther J. Pickrel, director and professor to associate dean, state leader, and professor, Graduate School and special studies, Agricultural Extension Service
 Thomas J. Pollock, instructor to assistant professor, speech, Duluth
 Marian B. Pour-El, associate professor to professor, mathematics
 James B. Preus, director and assistant professor to director and associate professor, lower division offices, College of Liberal Arts
 James T. Prince, assistant professor to associate professor, microbiology
 Wentworth Quast, associate professor to professor, psychiatry and neurology
 Paul G. Quie, associate professor to professor, pediatrics
 Richard B. Raile, associate professor to professor, pediatrics
 David A. Randall, clinical instructor to clinical assistant professor, medicine
 Ida G. Rapoport, assistant professor to associate professor, social work
 Leon Reisman, head and associate professor to head and professor, Division of Literature, Writing, and Speech, General College
 Marcel K. Richter, associate professor to professor, economics

- Robert E. Riggs, associate professor to professor, political science
 Gertrude L. Roff, director and instructor to director and assistant professor,
 Continuing Education for Women and special courses
 Richard A. Salome, assistant professor to associate professor, art education
 S. Jay Samuels, assistant professor to associate professor, educational psychology
 Burton M. Sapin, associate professor to professor, political science
 Athelene H. Scheid, associate professor to professor, Agricultural Extension
 Service
 Vera M. Schletzer, assistant professor and coordinator to associate professor and
 coordinator, scholastic and counseling services, General Extension Division
 William D. Schmid, assistant professor to associate professor, zoology
 R. Joseph Schork, associate professor to professor, classics
 Fred E. Schroeder, instructor to assistant professor, English, Duluth
 R. Smith Schuneman, assistant professor to associate professor, journalism and
 mass communication
 William B. Schwabacher, associate professor to professor, natural science and
 mathematics, General College
 Charles Schwartz, assistant professor to associate professor, music
 Helmut J. Schweiger, head and assistant professor to head and associate professor,
 Division of Humanities and language, Duluth
 Thomas Scott, assistant professor to associate professor, political science
 George L. Shapiro, associate professor to professor, speech, communication,
 and theatre arts
 John C. Sim, associate professor to professor, journalism and mass communication
 Vernon L. Simula, assistant professor to associate professor, education and psy-
 chology, Duluth
 Frances E. Skinner, assistant professor to associate professor, sociology and
 anthropology, Duluth
 Donald K. Smith, associate vice president and professor to vice president and
 professor, Office of the Vice President for Administration and speech, com-
 munication, and theatre arts
 Francis J. Smith, Jr., associate professor and extension economist to professor
 and extension economist, agricultural economics and marketing
 Martin L. Snoke, associate dean and associate professor to associate dean and
 professor, Office of the Dean of Students and educational psychology
 Anna L. Stensland, associate professor to professor, English, Duluth
 Annalee Stewart, instructor to assistant professor, social work
 Margery W. Stricker, assistant professor to associate professor, English
 Constance A. Sullivan, lecturer to assistant professor, Spanish and Portuguese
 Richard A. Swalin, head and professor to associate dean and professor, Institute
 of Technology
 James B. Swan, assistant professor and extension specialist to associate professor
 and extension specialist, soil science and soils
 Michael Sydor, assistant professor to associate professor, physics, Duluth
 Auke Tellegen, associate professor to professor, psychology
 Esther J. Tessman, instructor and public health nurse to assistant professor and
 public health nurse, University Health Service
 Kenneth H. Thomas, instructor and extension economist to assistant professor and
 extension economist, agricultural economics and farm management
 Larry C. Thompson, associate professor to professor, chemistry, Duluth
 Milton A. Trapold, associate professor to professor, psychology
 Theodore E. Uehling, director and assistant professor to director and associate
 professor, seminars and honors, Office of the Dean, Morris
 Carol Urness, assistant curator and instructor to assistant curator and assistant
 professor, James Ford Bell Library collection
 E. Ruth van Appledorn, assistant professor to associate professor, music, Duluth
 C. Edwin Vaughan, instructor to assistant professor, Student Activities Bureau
 Mario Volpe, instructor to assistant professor, studio arts
 Cecil J. Waddington, associate professor to professor, physics and astronomy
 Frederick M. Waltz, assistant professor to associate professor, electrical engineering
 David A. Ward, associate professor to professor, sociology
 Dwain W. Warner, curator and associate professor to curator and professor,
 ornithology, James Ford Bell Museum of Natural History

- Huber R. Warner, assistant professor to associate professor, biochemistry
 William H. Warner, associate professor to professor, aeronautics and engineering mechanics
 Thomas F. Waters, associate professor to professor, entomology, fisheries, and wildlife
 Karl E. Weick, Jr., associate professor to professor, psychology
 James H. Wertz, Jr., director and associate professor to director and professor, Center for Curriculum Studies and physics
 Walter V. Weyhmann, assistant professor to associate professor, physics and astronomy
 Clifford L. Wilcox, superintendent and associate professor to superintendent, assistant director, and professor, Agricultural Experiment Station, Rosemount, and Agricultural Experiment Station, St. Paul
 Frederick M. Williams, assistant professor to associate professor, zoology
 Ralph C. Williams, Jr., associate professor to professor, internal medicine
 Theodore A. Wilson, assistant professor to associate professor, aeronautics and engineering mechanics
 Kenneth E. Winsness, assistant to director and associate professor to assistant to director and professor, School of Forestry
 Frank H. Wood, assistant professor to associate professor, special education
 Sin M. Wu, instructor to assistant professor, science and mathematics, Morris
 John I. Yellot, Jr., assistant professor to associate professor, psychology
 Helen J. Yesner, associate professor to professor, social work
 Edmond Yunis, director and associate professor to director and professor, Hospital Blood Bank and laboratory medicine
 Mahmood A. Zaidi, assistant professor to associate professor, industrial relations
 Donald R. Zander, director and associate professor to assistant to vice president and associate professor, Office of the Vice President for Student Affairs and educational psychology
 Candido P. Zanoni, instructor to assistant professor, psychology, philosophy, and family studies, General College
 Joseph P. Zesbaugh, instructor to assistant professor, speech, Duluth
 Edmund A. Zottola, assistant professor and extension food microbiologist to associate professor and extension food microbiologist, food science and industries

Promotions and Transfers, 1969-1970

- John E. Adams, instructor to assistant professor, social sciences, Duluth
 John F. Alexander, associate professor to professor, physical education for men
 Charles E. Allen, assistant professor to associate professor, animal science
 William M. Ammentorp, assistant professor to associate professor, educational administration
 Richard D. Ashmun, assistant professor to associate professor, secondary education
 Elia Ayoub, associate professor to professor, pediatrics
 Donald G. Baker, associate professor to professor, soil science
 Egolfs V. Bakuzis, associate professor to professor, forestry
 Ward J. Barrett, associate professor to professor, geography
 Leonard D. Bart, assistant professor to associate professor, speech, communication, and theatre arts
 G. Eric Bauer, assistant professor to associate professor, anatomy
 Martin E. Bergeland, assistant professor to associate professor, veterinary medicine
 Robert Bernlohr, associate professor to professor, microbiology
 John Berryman, professor to Regents' Professor of Humanities
 Donald Biggs, assistant professor to associate professor, student life studies
 Harvey Bjerke, assistant professor and extension agent to associate professor, agricultural economics
 Rodney Bleifuss, assistant professor to associate professor, mineral and metallurgical engineering
 James Bolton, associate professor to professor, chemistry
 Richard Borch, assistant professor to associate professor, chemistry
 Betty L. Brecto, instructor to assistant professor, business, Crookston
 Robert C. Bright, assistant professor to associate professor, ecology and behavioral biology

- Glenn Brudvig, assistant professor and librarian to associate professor and librarian, Bio-Medical Library
- W. Keith Bryant, associate professor to professor, agricultural economics
- David Bryden, assistant professor to associate professor, law
- Kenneth J. Buechele, clinical assistant professor to clinical associate professor, dentistry
- Dorothy M. Burrows, associate professor to professor, literature, communication, and philosophy, General College
- Thomas J. Bydalek, associate professor to professor, chemistry, Duluth
- Philip C. Campbell, instructor to assistant professor, social sciences, Duluth
- Wayne E. Carlson, instructor and assistant state leader to assistant professor and assistant state leader, 4-H and youth development, Agricultural Extension Service
- Robert Carr, assistant professor to associate professor, chemical engineering
- Gaward F. Caveness, instructor to assistant professor, agriculture, Crookston
- Naomi C. Chase, associate professor to professor, elementary education
- Peter W. Chommie, instructor to assistant professor, social work
- John P. Clark, associate professor to professor, sociology
- Edward Coen, associate professor to professor, economics
- Theodore Cole, assistant professor to associate professor, physical medicine and rehabilitation
- Evelyn S. Coleman, associate professor to professor, German
- Bernard J. Conlin, assistant professor and extension dairyman to associate professor and extension dairyman, animal science and Agricultural Extension Service
- Edward J. Cowles, associate professor to professor, chemistry
- William H. Cromell, instructor to assistant professor, North Central School and Experiment Station
- E. Louise Curtis, associate professor to professor, education, Morris
- Edward J. Cushing, assistant professor to associate professor, botany
- Donald M. Davidson, Jr., assistant professor to associate professor, geology, Duluth
- David W. Davis, associate professor to professor, horticultural science
- H. Ted Davis, associate professor to professor, chemical engineering
- Douglas M. Dearden, associate professor to professor, natural science, General College
- Stanley L. Diesch, assistant professor to associate professor, veterinary microbiology and public health
- Frank E. DiGangi, professor to assistant dean and professor, student affairs, College of Pharmacy
- Richard P. Doe, associate professor to professor, medicine
- Dorothy E. Downey, instructor to assistant professor, public health
- Allen L. Downs, assistant professor to associate professor, music, Duluth
- Edward P. Dozier, professor to chairman and professor, Department of American Indian Studies and anthropology
- Orval T. Driggs, Jr., associate professor to professor, social sciences, Morris
- Martin Dworkin, associate professor to professor, microbiology
- Robert Dykstra, associate professor to professor, elementary education
- Harold E. Dziuk, associate professor to professor, veterinary physiology and pharmacology
- Theodore T. Edblom, clinical associate professor to clinical professor, dentistry
- Kenneth E. Egertson, instructor and extension economist to assistant professor and extension economist, marketing and agricultural economics
- Eugene Eidenberg, assistant professor to associate professor, political science
- Dortha Esch, instructor to assistant professor, physical medicine and rehabilitation
- Robert F. Estelle, director and instructor to director and assistant professor, Language Laboratory and Spanish and Portuguese
- Abraham Falk, assistant professor to associate professor, medicine
- William R. Fifer, clinical professor to director and professor, University Regional Medical Program and medicine
- F. Faith Finnberg, associate professor to professor, literature, communication, and philosophy, General College
- Peter Firchow, assistant professor to associate professor, English

- Susanne G. Fisher, instructor and assistant state leader to assistant professor and assistant state leader, 4-H and youth development, Agricultural Extension Service
- Krzysztof Frankowski, assistant professor to associate professor, University Computer Center
- Edward C. Frederic, superintendent and professor to director, superintendent, and professor, to director and professor, University of Minnesota Technical College, Waseca
- Mary Louise Freeberg, instructor to assistant professor, nursing
- Charles Freedman, instructor to assistant professor, economics
- Edgar Garbisch, associate professor to professor, chemistry
- Eugene Gedgudas, director and associate professor to head and professor, Department of Radiology
- Harold Gilbertstadt, associate professor to professor, psychiatry
- Betty T. Girling, senior program supervisor to assistant professor, radio and television
- Charles J. Glotzbach, associate professor to professor, educational psychology
- Jean Goepfinger, instructor to assistant professor, nursing
- Robert A. Good, professor to Regents' Professor of Pediatrics
- Richard J. Goodkind, assistant professor to associate professor, dentistry
- Stephen G. Granger, assistant provost and associate professor to assistant provost and professor, University of Minnesota, Morris
- James A. Grant, assistant professor to associate professor, science and mathematics, Duluth
- Hans M. Gregersen, assistant professor, forestry, to assistant professor, forestry and agricultural economics
- Edward M. Griffin, assistant professor to associate professor, English
- Theda Hagenah, assistant director and professor to director and professor, Student Counseling Bureau and educational psychology
- Henry Hall, assistant professor to associate professor, geology and geophysics
- Richard H. Hall, associate professor to professor, sociology
- Alvin R. Hallgren, assistant professor to associate professor, forestry
- Jerome W. Hammond, assistant professor to associate professor, agricultural economics
- James O. Hanson, director and assistant professor to director and associate professor, Continuing Veterinary Education and veterinary medicine
- Robert C. Hart, associate professor to professor, English, Duluth
- Donald Hasbargen, associate professor and Mower County extension agent to associate professor and Blue Earth County extension agent, Agricultural Extension Service
- Nils Hasselmo, associate professor to acting chairman, director, and associate professor, Department of Scandinavian and Center for Northwest European Language and Area Studies
- Harland B. Hasslen, chairman and assistant professor to chairman and assistant professor, Division of Agriculture, Waseca
- Richard O. Hawkins, instructor and extension economist to assistant professor and extension economist, farm management and agricultural economics
- George J. Hayano, clinical instructor to clinical assistant professor, dentistry
- Carl B. Heggstad, associate professor to professor, anatomy
- A. Dean Hendrickson, instructor to assistant professor, education and psychology, Duluth
- Barbara Hibyan, instructor to assistant professor, nursing
- Richard L. Hill, assistant professor to associate professor, secondary education
- Wells Hively III, associate professor to professor, educational psychology
- James F. Hogg, assistant vice president, secretary to the Board of Regents, and professor to executive assistant to the President, secretary to the Board of Regents and professor, Office of the President and law
- Peter M. Holm, clinical instructor to clinical assistant professor, dentistry
- Roger Hooke, assistant professor to associate professor, geology and geophysics
- John S. Hoyt, Jr., associate professor and extension economist to professor and extension economist, agricultural economics
- Dale D. Huffington, supervisor and instructor to supervisor and assistant professor, Drama Advisory Service

- Jay M. Hughes, associate professor to professor, forestry
 John P. Huneke, instructor to assistant professor, mathematics
 Leonid Hurwicz, professor to Regents' Professor of Economics
 John Q. Imholte, acting provost and associate professor to acting provost, academic dean, and professor to provost and professor, University of Minnesota, Morris
 Hosni Iskander, assistant professor to associate professor, architecture and landscape architecture
 James E. Jernberg, assistant professor to associate professor, public affairs
 Robert Jeronimus, assistant professor to associate professor, dentistry
 Paul F. Jessup, assistant professor to associate professor, finance and insurance
 Clyde E. Johnson, associate professor to professor, humanities, Morris
 Eugene A. Johnson, associate professor to professor, public health
 Gerald W. Johnson, instructor to assistant professor, civil engineering and hydraulics
 Kenneth H. Johnson, assistant professor to associate professor, veterinary pathology and parasitology
 Harlan Johnsrud, assistant professor and Carlton County associate extension agent to assistant professor and Mower County extension agent, Agricultural Extension Service
 Ruth E. Jones, assistant professor to associate professor, Spanish and Portuguese
 Hugh F. Kabat, associate professor to professor, pharmacy
 Stephen Kahne, assistant professor to associate professor, electrical engineering
 Stanley B. Kegler, assistant vice president and professor to associate vice president and professor, Office of the Vice President for Coordinate Campuses and Educational Relationships and education
 Eric Klinger, associate professor to professor, social sciences, Morris
 William H. Knobloch, assistant professor to associate professor, ophthalmology
 Gisela Konopka, professor to special assistant to the vice president for student affairs and professor, Center for Urban and Regional Affairs and social work
 Alan Kraning, instructor to assistant professor, studio arts
 Cory Kruckenberg, clinical assistant professor to clinical associate professor, dentistry
 Ronald E. LaBelle, clinical assistant professor to clinical associate professor, dentistry
 Ronald T. Lambert, associate professor to professor, elementary education
 Raymond J. Lammers, associate professor to professor, humanities, Morris
 Leonard A. Lang, clinical assistant professor to clinical professor, obstetrics and gynecology
 Dale L. Lange, assistant professor to associate professor, secondary education
 Daniel M. Larson, clinical instructor to clinical assistant professor, dentistry
 Jay A. Leavitt, assistant professor to associate professor, University Computer Center
 Jui S. Lee, assistant professor to associate professor, physiology
 Thomas S. Lee, assistant professor to associate professor, electrical engineering
 Darrell R. Lewis, assistant professor to associate professor, secondary education
 Richard G. Lidberg, assistant professor to associate professor, elementary education
 John S. Lilley, assistant professor to associate professor, physics and astronomy
 Benjamin Liu, associate professor to professor, mechanical engineering
 Peter W. Lock, associate professor to professor, French and Italian
 Rodney G. Loper, assistant professor to associate professor, Student Counseling Bureau and psychology
 Rex E. Lovrien, assistant professor to associate professor, biochemistry
 Russell Lucas, associate professor to professor, pediatrics
 Rachel Lukkason, instructor and librarian to assistant professor and librarian, libraries
 David Lykken, professor, psychiatry and psychology, to professor, psychiatry, psychology, and behavioral genetics
 Richard J. Mackie, assistant professor to associate professor, entomology, fisheries, and wildlife
 John C. Manning, associate professor to professor, elementary education

- Richard R. Martin, associate professor to professor, speech science, pathology, and audiology
- Robert McCollister, assistant professor to associate professor, medicine
- George J. McCutcheon, associate professor to professor, natural science and mathematics, General College
- Martin B. McMillion, assistant professor to associate professor, agricultural education
- Sheila McNally, assistant professor to associate professor, art history
- John D. McRae, assistant professor to associate professor, pharmacy
- Gerald R. Miller, associate professor and extension agronomist to professor and extension agronomist, agronomy and plant genetics
- Harold A. Miller, assistant dean and associate professor to associate dean and associate professor, Summer Session and speech and theatre arts
- Dorothy Moe, instructor to assistant professor, nursing
- Paul H. Monson, associate professor to professor, biology, Duluth
- John P. Moran, assistant professor to associate professor, aeronautics and engineering mechanics
- Richard A. Morris, assistant professor to associate professor, history, Duluth
- Thomas J. Muench, assistant professor to associate professor, economics
- Robert Mulhausen, assistant professor to associate professor, medicine
- John K. Munholland, assistant professor to associate professor, history
- Thomas Murphy, associate professor to professor, mechanical engineering
- V. Rama Murthy, associate professor to professor, geology and geophysics
- Daniel C. Neale, associate professor to professor, educational psychology
- J. Russell Nelson, associate professor to professor, finance and insurance
- Joel I. Nelson, assistant professor to associate professor, sociology
- Ralph W. Nestor, instructor to assistant professor, food management, Crookston
- Howard J. Newell, district supervisor and associate professor to district supervisor and professor, Agricultural Extension Service
- Mayo K. Newhouse, associate professor to professor, social work
- William L. Nunn, director, University Relations, to special assistant to the vice president, Office of the Vice President for Investments
- Allen Nussbaum, associate professor to professor, electrical engineering
- Leonard Ojala, research associate to assistant professor, education and psychology, Duluth
- Carl J. Olson, clinical assistant professor to clinical associate professor, dentistry
- Donald E. Olson, assistant professor to associate professor, rhetoric, Duluth
- Leonard Parker, associate professor to professor, architecture and landscape architecture
- Frederick W. Peterson, associate professor to professor, humanities, Morris
- Martin Q. Peterson, instructor to assistant professor, anthropology
- Willis L. Peterson, assistant professor to associate professor, agricultural economics
- Hans-Olaf Pfannkuch, assistant professor to associate professor, geology
- Gene L. Piché, assistant professor to associate professor, secondary education
- Arshi Pipa, associate professor to professor, French and Italian
- Robert J. Poor, assistant professor to associate professor, art history
- Philip S. Portoghese, associate professor to professor, pharmacy
- Konald A. Prem, associate professor to professor, obstetrics and gynecology
- James B. Preus, director and associate professor, College of Liberal Arts lower division student personnel, to assistant director and associate professor, Admissions and Records
- Starling W. Price, assistant professor to associate professor, rhetoric
- Zigmunds Priede, assistant professor to associate professor, studio arts
- Rosella H. Qualey, district supervisor and associate professor to district supervisor and professor, Agricultural Extension Service and home economics
- Verna Rausch, associate professor to professor, laboratory medicine
- Gilford Remington, director and associate professor to director and professor, Evening and Special Classes, Duluth
- John G. Rice, assistant professor to associate professor, geography
- Ruth Roberts, assistant professor to associate professor, Student Counseling Bureau
- Palmer Rogers, associate professor to professor, microbiology
- Bruce D. Rolloff, assistant professor to associate professor, education, Morris

- Robert W. Romig, assistant professor to associate professor, plant pathology
 Keith Ruddick, assistant professor to associate professor, physics and astronomy
 Dorothy E. Rundorff, associate professor to professor, Spanish and Portuguese
 Frank L. Ryan, assistant professor to associate professor, elementary education
 Darwin Sarnoff, instructor to assistant professor, clinical pharmacy
 Edward B. Savage, associate professor to professor, rhetoric
 Lanny Schmidt, assistant professor to associate professor, chemical engineering
 Richard H. Schultz, assistant professor to associate professor, veterinary obstetrics and gynecology
 Duane C. Scribner, assistant to the vice president for administration to director, University Relations
 Joseph Shapiro, associate professor to professor, geology and geophysics
 John K. Simmons, assistant professor to associate professor, accounting
 David H. Smith, assistant professor to associate professor, speech, communication, and theatre arts
 Melvin R. Smith, assistant professor to associate professor, agricultural engineering
 Quenton T. Smith, research associate to associate professor, dentistry
 Robert G. Smith, instructor to assistant professor, business, Crookston
 Morris Smithberg, associate professor to professor, anatomy
 D. Peter Snustad, assistant professor to associate professor, genetics and cell biology
 Hugo F. Sonnenschein, associate professor to professor, economics
 Anthony Starfield, assistant professor to associate professor, mineral and metallurgical engineering
 Robert A. Stein, associate professor to professor, law
 Wayne Stein, assistant professor to associate professor, physics and astronomy
 Ruth Stief, assistant professor to associate professor, public health
 Donald Stieper, assistant professor to associate professor, psychiatry
 Oliver E. Strand, instructor and assistant extension agronomist to assistant professor and assistant extension agronomist, agronomy and plant genetics and Agricultural Extension Service
 Edward I. Sucoff, associate professor to professor, forestry
 Joo H. Sung, associate professor to professor, neurology
 Patricia B. Swan, assistant professor to associate professor, home economics
 Akira Takemori, associate professor to professor, pharmacology
 Ronald G. Taylor, assistant professor to associate professor, Student Counseling Bureau
 Travis Thompson, associate professor to professor, psychiatry
 Edgar M. Turrentine, associate professor to professor, music education
 James C. Underhill, associate professor to professor, zoology
 Ted L. Underwood, assistant professor to associate professor, social sciences, Morris
 Robert A. Vickers, associate professor to professor, dentistry
 David A. Vose, assistant professor to associate professor, economics, Duluth
 Joseph L. Waldauer, associate professor to professor, French and Italian
 Arley D. Waldo, associate professor and extension economist to professor and extension economist, public affairs and agricultural economics
 Neil Wallace, assistant professor to associate professor, economics
 Jean Ward, lecturer to assistant professor, journalism and mass communication
 John P. Ward, visiting Hill professor to professor, Afro-American studies
 John W. Webb, professor to associate dean for social sciences and professor, College of Liberal Arts and geography
 David Webster, associate professor to professor, neurology
 Vernon Weckwerth, associate professor to professor, public health
 Paul Weiblen, assistant professor to associate professor, geology and geophysics
 Delane E. Welsch, assistant professor to associate professor, agricultural economics
 Stanley J. Wenberg, vice president for educational relationships and development to vice president for coordinate campuses and educational relationships, Office of the Vice President for Coordinate Campuses and Educational Relationships
 Douglas White, instructor and librarian to assistant professor and librarian, libraries

- John S. White, associate professor to professor, mechanical engineering
 Andrew F. Whitman, assistant professor to associate professor, finance and insurance
 Jeffrey J. Wiebe, instructor to assistant professor, education, Crookston
 Harold F. Wilkins, assistant professor and extension horticulturist to associate professor and extension horticulturist, Agricultural Extension Service
 Duane A. Wilson, district supervisor and associate professor to professor, Agricultural Extension Service
 William E. Wright, associate dean and associate professor to associate to the vice president for academic administration and associate professor, Office of International Programs and history
 Carole B. Yoho, instructor and extension specialist to assistant professor and extension specialist, public affairs, Agricultural Extension Service
 Charles W. Young, associate professor to professor, animal science
 Jorge Yunis, associate professor to professor, laboratory medicine
 Myra B. Zabel, associate professor and extension specialist to professor, home furnishings

Leaves of Absence, 1968-1969

- Eleanor M. Anderson, associate professor of public health, sabbatical furlough, December 16, 1968-June 15, 1969, to conduct a pilot study of rehabilitation nursing in Indonesia.
 Donald G. Aronson, professor of mathematics, sabbatical furlough, 1968-69, for research on the flow of gases through porous media and the interconnection between the theory of heat potential and the theory of probability, with time to be spent at the University of Rome.
 Marvin Bacaner, associate professor of physiology, without salary, October 1, 1968-June 30, 1969, for research on the effects of brethylum in coronary patients at Ram Baum Hospital, Haifa, Israel.
 Jacob E. Bearman, professor of public health, sabbatical furlough, September 1, 1968-August 31, 1969, for research in Israel on cardiovascular epidemiology, sponsored by the National Institutes of Health.
 David K. Berninghausen, director and professor, Library School, without salary, February 22-May 31, 1969, to serve as visiting professor at the University of Hawaii.
 Donald H. Blocher, professor of educational psychology, sabbatical furlough, 1968-69, for research on counselor education programs in the United Kingdom and Europe on a Fulbright Scholarship at the University of Keele.
 Richard N. Blue, assistant professor of political science, continuation of leave without salary, fall quarter, for research in India.
 Mark Bolsterli, professor of physics, without salary, 1968-69, to serve as visiting physicist at Los Alamos Laboratory.
 Jan O. Broek, professor of geography, sabbatical furlough, December 16, 1968-June 15, 1969, for research on problems of historical geography and the changing map image of the Malay Archipelago since 1500 A.D., with time to be spent in Indonesia and possibly Malaysia, and to attend the 21st International Geographical Congress in New Delhi.
 Oswald H. Brownlee, professor of economics, continuation of leave without salary, fall and winter quarters, to serve as Rockefeller Foundation representative in economics at the University of Chile and Catholic University of Chile.
 John B. Carlson, professor of science and mathematics, Duluth, sabbatical furlough, 1968-69, for writing a monograph on soybean morphology on a U.S. Department of Agriculture grant.
 Clarke A. Chambers, director and professor, Social Welfare History Archives Center and history, sabbatical furlough, March 16, 1969-March 15, 1970, for writing a history of the journal *Survey* and a biography of its editor, Paul U. Kellogg.
 William R. Charlesworth, associate professor of child development, sabbatical furlough, 1968-69, to acquire new skills and conduct advanced research in the area of ontogenetic changes in cognitive and expressive behavior in infants, with time to be spent at the Max Planck Institute, Munich, Germany.

- Harold W. Chase, professor of political science, without salary, 1968-69, to serve with the Marine Corps in Vietnam.
- Theodore W. Clymer, professor of elementary education, sabbatical furlough, 1968-69, for research on graduate courses, with time to be spent at California universities.
- Lawrence E. Conroy, associate professor of chemistry, sabbatical furlough, 1968-69, for research on the techniques of crystal synthesis at the Munster Institute of Inorganic Chemistry and Argonne National Laboratories.
- Mary E. Corcoran, professor of foundations of education, sabbatical furlough, 1968-69, for research on a micro-study approach for developing estimates of student-demand and student-flow parameters, with time possibly to be spent in Western Europe.
- John J. Cound, professor of law, without salary, 1968-69, to serve as visiting professor at the University of California.
- Carlos F. Diaz, associate professor of economics, without salary, fall quarter 1968 and winter and spring quarters 1970, to accept a Ford Foundation faculty research fellowship, and winter and spring quarters 1969, to serve on the Pearson Commission.
- Joseph E. Duncan, professor of humanities, Duluth, sabbatical furlough, 1968-69, for writing a book on changing conceptions of the earthly paradise in relation to Milton's *Paradise Lost*, with time to be spent at the Harvard University library and libraries in New York.
- Henry J. Ehlers, head and professor, Division of Humanities, Duluth, sabbatical furlough, spring quarter 1969 and winter and spring quarters 1970, for writing the book *Crucial Issues in Religion*.
- Eugene Eidenberg, assistant professor of political science, without salary, 1968-69, to serve as executive assistant to Mayor Naftalin of Minneapolis.
- Erwin Engeler, professor of mathematics, sabbatical furlough, 1968-69, to serve as visiting research mathematician at the University of California at Berkeley.
- Robert E. Evenson, assistant professor of agricultural economics, without salary, September 16, 1968-May 15, 1969, to serve as visiting professor at Southern Methodist University.
- John Ferguson, professor of classics, without salary, 1968-69, to teach at Hampton Institute.
- Peter F. Firchow, assistant professor of English, without salary, spring quarter, for research and writing on modern British literature at Widener Library, Cambridge, England.
- Edward Flaccus, associate professor of science and mathematics, Duluth, without salary, 1968-69, for postdoctoral research at Brookhaven National Laboratories.
- William H. Flanigan, associate professor of political science, sabbatical furlough, 1968-69, for research on the Minnesota Political Data Archive and in American public opinion and voting behavior.
- Arnold M. Flikke, professor of agricultural engineering, sabbatical furlough, September 1-November 30, 1968, to complete a Ph.D. thesis at Auburn University.
- Laverne B. Forest, assistant professor and agricultural county agent, Agricultural Extension Service, without salary, October 10, 1968-June 30, 1969, for doctorate study at the University of Wisconsin at Madison.
- Harry M. Friedman, assistant professor of science and mathematics, Morris, without salary, 1968-69, for study and travel.
- Stephen Gasiorowicz, professor of physics, sabbatical furlough, 1968-69, for research in elementary particle physics at the Deutsches Elektronen Synchrotron laboratory in Hamburg and the University of Hamburg Institute of Theoretical Physics.
- Luther P. Gerlach, associate professor of anthropology, with salary, 1968-69, for research on the Black Power movement in Minneapolis.
- Donald L. Graf, professor of geology and geophysics, without salary, winter quarter, to serve as visiting professor at the University of Illinois.
- Walter T. Graves, associate professor of civil engineering and hydraulics, without salary, fall and winter quarters, for professional interests and personal reasons.

- Leon W. Green, professor of mathematics, without salary, winter quarter, to serve as a member of the Symposium on Differential Equations at the University of Warwick Institute of Mathematics and to be an exchange professor at the University of Paris.
- John W. Hall, professor of botany, sabbatical furlough, 1968-69, for research in the field of Cretaceous palynology at Yale University and the University of Calgary.
- William A. Harris, Jr., associate professor of mathematics, without salary, 1968-69, to serve as visiting professor during Applied Mathematics Year at the University of California at Los Angeles.
- Nils Hasselmo, associate professor of Scandinavian, without salary, 1968-69, for research in Iceland and Sweden under a Fulbright-Hays Center faculty fellowship.
- William R. Hastie, professor of art education, sabbatical furlough, fall and winter quarters, for research on innovative practices in the teaching of art in selected school districts in the United States, and without salary, spring quarter, to serve as visiting professor at Texas Technological College.
- Jeanette W. Hauschild, assistant professor and Lincoln County home agent, Agricultural Extension Service, sabbatical furlough, April 11-August 4, 1968, and September 12, 1968-February 2, 1969, for graduate study in guidance and counseling at South Dakota State University.
- Edward G. Hill, assistant professor of education and psychology, Duluth, without salary, 1968-69 for doctorate study at the University of Minnesota.
- John R. Howe, Jr., associate professor of history, without salary, fall and winter quarters, for research at Harvard University on American political thought from the Revolution to the Jacksonian period.
- Chih-Chun Hsiao, professor of aeronautics and engineering mechanics, sabbatical furlough, 1968-69, for research on mechanics and physics of solids, with time to be spent at the University of Cambridge.
- Charles W. Huver, associate professor and curator of fishes, James Ford Bell Museum of Natural History, sabbatical furlough, October 1, 1968-September 30, 1969, for research on the etiology of malignant melanomas in bluegills of Gull Lake, Mich., with time to be spent at the W. K. Kellogg Biological Station, Mich., and the Marine Biological Laboratory, Woods Hole, Mass., or the Institute for Freshwater Research, Drottningholm, Sweden, under a grant from the American Cancer Society.
- Benton N. Jamison, associate professor of mathematics, without salary, 1968-69, to teach at the University of California.
- Reynold A. Jensen, director and professor, Division of Child Psychiatry, sabbatical furlough, 1968-69, for study and research in the Department of Speech and Theatre Arts at the University of Minnesota.
- Elden Johnson, professor of anthropology, sabbatical furlough, 1968-69, to prepare manuscripts for publication, with time to be spent at the Santa Fe School of American Research.
- Stephen J. Kahne, assistant professor of electrical engineering, without salary, fall quarter, to serve as consultant to the U.S. Department of Housing and Urban Development.
- Eric Klinger, associate professor of social sciences, Morris, sabbatical furlough, 1968-69, for writing a book.
- Donald B. Lawrence, professor of botany, sabbatical furlough, 1968-69, for study and travel in Mexico, India, New Zealand, and Japan.
- Edwin H. Lewis, professor of business administration, sabbatical furlough, 1968-69, for research on the domestic marketing system of England, with time to be spent at Lancaster, England.
- John C. Lin, assistant professor of science and mathematics, Morris, without salary, 1968-69, for graduate study in mathematics and statistics at Iowa State University.
- Robert C. Lindsay, associate professor of journalism and mass communication, without salary, September 16, 1968-June 15, 1969, to serve as consultant to U.N.E.S.C.O. in Paris.
- Benjamin E. Lippincott, professor of political science, sabbatical furlough, September 16, 1968-March 15, 1969, for research on political relations, problems of the modern state, scientific method, and the area of art and politics, with time to be spent on the East coast and in England.

- Benjamin Y. Liu, associate professor of mechanical engineering, sabbatical furlough, 1968-69, for research, independent study, and writing a book, *Electrical Phenomena in Particulate Systems*, under a Guggenheim fellowship.
- Hubert M. Loy, director and associate professor, Student Teaching Division and education and psychology, Duluth, without salary, 1968-69, to serve as lecturer and counselor at Mara Institute of Technology, Kuala Lumpur, Malaysia.
- Rufus W. Lumry, professor of chemistry, sabbatical furlough, 1968-69, to catch up on publications and for research and writing.
- David T. Lykken, professor of psychiatry and neurology and psychology, sabbatical furlough, September 1, 1968-August 31, 1969, for research on the psycho-physiology of arousal in schizophrenia, with time to be spent at Birkbeck College, University of London.
- James F. Maclear, professor of social sciences, Duluth, sabbatical furlough, 1968-69, for writing a book on English nonconformist thought in the 18th century and the relations between Victorian dissenting interest and the American churches in the 19th century.
- Richard M. Magraw, professor of social medicine and psychiatry, without salary, 1968-69, for work at the U.S. Bureau of Health Services.
- Byron K. Marshall, associate professor of history, without salary, spring quarter, to serve as visiting professor in Asian studies at the Colegio de Mexico.
- Robert P. Marvin, professor of agricultural education, without salary, September 7, 1968-January 31, 1969, to serve as consultant to the International Bank for Reconstruction and Development and as an agricultural education specialist for a short-term assignment in Washington, D.C.
- Eugene Mather, professor of geography, without salary, winter quarter, for established field investigation, research, and writing.
- Charles A. McCarthy, professor of mathematics, sabbatical furlough, 1968-69, for research at the University of Sussex.
- Scott G. McNall, assistant professor of sociology, without salary, 1968-69, to serve as a Fulbright-Hays lecturer at Pierce College, Athens, Greece.
- Stanley R. Meinen, assistant professor and assistant state leader, Agricultural Extension Service and 4-H and youth development, sabbatical furlough, October 15, 1968-June 6, 1969, for graduate study in public administration at the University of Minnesota.
- Lawrence H. Meskin, associate professor of dentistry and public health and lecturer of pediatrics, with salary, October 1-December 15, 1968, to accept a World Health Organization travel fellowship.
- Norman G. Meyers, associate professor of mathematics, sabbatical furlough, 1968-69, for research at Hebrew University.
- Norman Miller, associate professor of psychology, sabbatical furlough, 1968-69, for writing and study, with time to be spent at the University of Minnesota and Riverside, Calif.
- Albert J. Moscowitz, professor of chemistry, without salary, January 1-March 15, 1969, to collaborate with colleagues at the University of California at Los Angeles.
- Richard A. Narvaez, associate professor of Romance languages, sabbatical furlough, 1968-69, for research on contemporary Spanish morphology and to continue writing on Spanish phonology, with time to be spent in Spain.
- Steven Orey, professor of mathematics, sabbatical furlough, 1968-69, for research in the theory of stochastic processes at the University of London.
- Arvid N. Pearson, professor of social sciences, Duluth, continuation of leave without salary, 1968-69, to serve with the U.N.E.S.C.O. Special Fund Project at the Mindanao Institute of Technology.
- Perti J. Peltó, associate professor of anthropology, without salary, 1968-69, to serve as visiting professor at Washington University.
- Helen J. Peterson, assistant professor of nursing, without salary, 1968-69, due to illness.
- Ellen B. Pirro, assistant professor of political science, without salary, 1968-69, for research and study.
- Philip W. Porter, professor of geography, without salary, spring quarter, to serve as senior research fellow at the Bureau of Resource Assessment and Land-Use Planning at the University College, Dar-es-Salaam, Tanzania.

- Ida G. Rapoport, associate professor of social work, sabbatical furlough, 1968-69, for study.
- Jonathan I. Richards, associate professor of mathematics, sabbatical furlough, 1968-69, for study and research of complex variables and harmonic analysis, with time to be spent at the University of Munich.
- Jay Y. Roshal, professor of science and mathematics, Morris, sabbatical furlough, 1968-69, for research on aspects of the physiology and genetics of thermophilic thallophytes, with time to be spent at Harvard University.
- Harold Ruben, professor of statistics, continuation of leave without salary, 1968-69, to teach at Birkbeck College, University of London.
- Burton M. Sapin, associate professor of political science, without salary, 1968-69, to serve as visiting professor at the Rhode Island Naval War College.
- Mabel D. Schauland, assistant professor of education and psychology, Duluth, without salary, 1968-69, for graduate work.
- Joseph E. Schwartzberg, associate professor of geography, without salary, winter quarter, to work in India on the South Asia Historical Atlas Project.
- Yasutaka Sibuya, professor of mathematics, without salary, spring quarter, to serve as lecturer at the University of California at Los Angeles.
- Sidney Simon, associate professor of art history, without salary, 1968-69, to serve as a consultant at the University of California at Santa Cruz.
- Lawrence R. Simonson, assistant professor and extension specialist, Agricultural Extension Service and tourist services, sabbatical furlough, February 1-May 31, 1969, for doctorate study in recreation resource development.
- Hugo F. Sonnenschein, associate professor of economics, without salary, 1968-69, to serve as visiting professor at Pennsylvania State University.
- Anthony M. Starfield, assistant professor of mineral and metallurgical engineering, without salary, September 16-December 31, 1968, for research with the rock mechanics group at the Mining Research Laboratory of the South African Chamber of Mines.
- Wayne A. Stein, assistant professor of physics, without salary, spring quarter, to work at the University of California.
- Martin Steinmann, Jr., professor of English, sabbatical furlough, fall and winter quarters, for research in theory and metatheory of rhetoric, and without salary, spring quarter, for research and writing.
- Jerry B. Stevens, assistant professor of veterinary pathology and parasitology, without salary, February 1, 1969-June 30, 1970, for research on lymphocyte kinetics at Brookhaven National Laboratory.
- Gertrude M. Strinden, assistant professor of home economics, Waseca, without salary, July 1-September 15, 1968, and April 16-June 30, 1969, and with 6 percent-time leave, September 16, 1968-April 15, 1969, for graduate study at the University of Minnesota.
- Larry C. Thompson, professor of science and mathematics, Duluth, without salary, January 1-June 15 and September 16-December 31, 1969, to teach a graduate course at the University of São Paulo, under a program sponsored by the Ford Foundation.
- Yi-Fu Tuan, professor of geography, without salary, 1968-69, to accept a Guggenheim Foundation fellowship, with time to be spent in the Southwestern United States and Australia.
- John E. Turner, professor of political science, sabbatical furlough, 1968-69, for research and completion of several books.
- Hugh L. Turriffin, professor of mathematics, sabbatical furlough, 1968-69, for research on the theory of ordinary linear differential equations and closely related topics in topology and algebra, with time to be spent in Paris, France.
- Aldert van der Ziel, professor of electrical engineering, without salary, December 16, 1968-March 15, 1969, for research on noise in solid state devices at the University of Florida.
- Daniel E. Waite, professor of dentistry, with salary, December 16, 1968-February 15, 1969, to participate in the Project HOPE Ceylon tour.
- Neil Wallace, assistant professor of economics, without salary, 1968-69, to work at the National Bureau of Economic Research.

- Richard C. Walter, assistant professor and Goodhue County associate agricultural agent, Agricultural Extension Service, sabbatical furlough, October 15, 1968-May 31, 1969, for graduate study at the University of Minnesota.
- David A. Ward, associate professor of sociology, without salary, fall and winter quarters, to serve as a fellow in law and sociology at Harvard University.
- Richard F. Weatherman, associate professor of special education, 50 percent-time leave without salary, spring quarter, for research on the South Dakota State Department of Public Instruction Special Education Programs.
- Edith West, professor of secondary education, without salary, September 1, 1968-June 15, 1969, to produce a series of videotapes for training teachers in the use of new social studies curriculum projects.
- Frank M. Whiting, professor of speech, communication, and theatre arts, sabbatical furlough, winter quarter, for writing and to visit theatres, schools, and museums in London.
- Richard E. Widmer, professor of horticultural science, sabbatical furlough, September 1, 1968-August 31, 1969, for research on the culture of floricultural crop plants in nutrient enriched peat media at the Agricultural Institute Kinsealy (Malahide, Ireland), and for travel in Europe.
- Roy D. Wilcoxson, professor of plant pathology, sabbatical furlough, January 1-December 31, 1969, for research on new hybrids and varieties of wheat, corn, sorghum, and rice at the New Delhi Indian Agricultural Research Institute and the Rockefeller Foundation Office of Indian Programs.
- Raimunds Zemjanis, head and professor, Department of Veterinary Obstetrics and Gynecology, sabbatical furlough, September 1, 1968-July 31, 1969, to attend a training program in reproductive biology at the University of California School of Medicine.
- Edmund A. Zottola, associate professor and food microbiologist, food science and industries and Agricultural Extension Service, without salary, April 1-June 30, 1969, to serve as consultant in Venezuela.

Leaves of Absence, 1969-1970

- Bruce Abrahamson, assistant professor of architecture, without salary, March 16-June 15, 1970, to devote full time to his private architectural practice.
- Richard E. Adams, associate professor of anthropology, without salary, winter quarter, for archaeological field work in Campeche, Mexico.
- William M. Ammentorp, associate professor of educational administration, 75 percent-time leave without salary, 1969-70, to serve as research director for the Upper Midwest Regional Educational Laboratory.
- John A. Anderson, head and professor, Department of Pediatrics, with salary, March 16-April 22, 1970, to establish cooperative research program between University of Minnesota faculty members and a medical school in India.
- Roger W. Benjamin, assistant professor of political science, without salary, 1969-70, for Fulbright research in Japan.
- Melvyn S. Berger, associate professor of mathematics, without salary, 1969-70, to accept a British National Research Council grant for research and lecturing at Cambridge University and to write a research monograph on the application of the techniques of nonlinear analysis to the natural sciences.
- R. Glen Beryman, professor of business administration, without salary, 1969-70, for research with the firm of Touche, Ross, Bailey and Smart.
- Rodney A. Briggs, professor of agronomy and plant genetics, without salary, May 1, 1969-June 30, 1970, to serve as assistant director of the International Institute of Tropical Agriculture in Nigeria under the Ford and Rockefeller Foundations.
- Jacques C. Comeaux, assistant professor of humanities, Duluth, without salary, 1969-70, to work toward a doctorate in French and Spanish.
- Anthony R. deSouza, assistant professor of geography, without salary, 1969-70 and 1970-71, to serve at the University College in Dar-es-Salaam under the auspices of the Rockefeller Foundation's Overseas Development Program.
- Arnold N. Enker, professor of law, without salary, 1969-70, to serve as senior assistant to the Attorney General of Israel.
- Eugene B. Fabes, associate professor of mathematics, without salary, winter and spring quarters, to serve as visiting member at the University of Ferrara.

- John H. Flavell, professor of child development, without salary, 1969-70, for research at the Center for Advanced Studies in the Behavioral Sciences.
- Norman Garnezy, professor of psychology, with salary to be paid by Career Award Funds through the University of Minnesota, July 1, 1969-March 31, 1970, and without salary, April 1-June 30, 1970, to engage in the collection of research data and teaching at Cornell University and the University of Rochester.
- Eugene Gedgaudas, head and professor, Department of Radiology, with salary, April 24-May 30, 1970, to serve as visiting professor in the medical centers of West Berlin, Helsinki, Stockholm, Lund, Copenhagen, Zurich, Berne, Rome, and Paris and to observe the latest methods and techniques of medical practice and education.
- George D. Green, assistant professor of history, without salary, 1969-70, to accept a research fellowship from the Charles Warren Center for Studies in American History at Harvard University.
- Delbert C. Hastings, professor of business administration, without salary, 1969-70, to serve as adviser to the Central Department of Statistics of the government of Saudi Arabia under the sponsorship of the Ford Foundation.
- John C. Hause, associate professor of economics, without salary, 1969-70, to work at the National Bureau of Economic Research, New York.
- Clifford C. Hildreth, professor of economics, without salary, fall and winter quarters, to serve as visiting professor at Virginia Polytechnic Institute.
- John P. Huneke, assistant professor of mathematics, without salary, 1969-70, for research and teaching at Ohio State University.
- Hugo H. John, professor and acting statistician, forestry and Agricultural Experiment Station, without salary, September 15, 1969-January 3, 1970, and February 9-October 16, 1970, to work with the Food and Agriculture Organization of the United Nations in assisting the government of Colombia in training forest engineers and rangers for employment with public and welfare forestry organizations.
- LaRue W. Johnson, assistant professor of veterinary medicine, without salary, April 1-June 30, 1970, to continue serving as consultant at the University of Mexico, sponsored by the Food and Agriculture Organization of the United Nations.
- Alfred H. Jones, assistant professor of history, without salary, 1969-70, for a U.S. Office of Education Postdoctoral Fellowship in Educational Research.
- William J. Kane, associate professor of orthopedic surgery, with salary, April 5-May 8, 1970, to attend meetings and present papers in Australia, Singapore, Hong Kong, Malaysia, and New Zealand.
- John H. Kareken, professor of economics, 50 percent-time leave without salary, 1969-70, to work for the Federal Reserve Bank of Minneapolis.
- Maxine M. Klein, associate professor of speech, communication, and theatre arts, without salary, 1969-70, to teach at Boston University.
- George Klinger, assistant professor of philosophy, without salary, 1969-70, to spend a year in France learning the French language and studying aspects of French culture and thought.
- George H. Knightly, assistant professor of mathematics, without salary, 1969-70, to visit the Mathematics Research Center at the University of Wisconsin.
- Fulton Koehler, professor of mathematics, without salary, 1969-70, to work for the Seismic Computing Corporation.
- David Kopf, associate professor of history, without salary, 1969-70, to do research in England and India for a second book on 19th century Bengali social and intellectual history.
- Anne Krueger, professor of economics, without salary, winter quarter, for research on effects of Indian import substitution policies on the Agency for International Development.
- Jerome Lieblich, professor of studio arts, without salary, December 16, 1969-June 15, 1970, to serve as consultant to Hampshire College (Amherst, Mass.) in preparation for their new film studies department.
- John C. Lin, assistant professor of science and mathematics, Morris, without salary, 1969-70, for continuing graduate study at Iowa State University.
- Joseph M. Livermore, associate professor of law, without salary, fall quarter, to serve as visiting professor at Stanford University.

- Peter Lock, professor of French and Italian, without salary, winter quarter, to continue research pursued during single quarter leave, fall 1969.
- John C. Manning, professor of elementary education, without salary, winter quarter, to reorganize lectures and course offerings.
- Byron K. Marshall, associate professor of history, without salary, fall and winter quarters, for research in Japan under the auspices of the Joint Committee on Asia of the American Council of Learned Societies and the Social Science Research Council.
- Lee R. Martin, acting director and professor, Economic Development Center and agricultural economics, without salary, January 1-June 30, 1970, to serve as visiting professor at the Giannini Foundation of Agricultural Economics, University of California at Berkeley.
- Eugene C. Mather, professor of geography, without salary, winter quarter, to teach at the University of Florida.
- John Moe, head and professor, Department of Orthopedic Surgery, with salary, March 26-April 28, 1970, to attend a meeting in New Zealand and present a paper in Australia.
- Arthur Naftalin, professor of public affairs, with salary to be paid by the Ford Foundation through the University of Minnesota, 1969-70, for study and research.
- Neal C. Nickerson, Jr., associate professor of educational administration, 75 percent-time leave without salary, 1969-70, to serve as principal in the Stillwater school system.
- Charles M. Nolte, assistant professor of speech, communication, and theatre arts, without salary, fall quarter, to write, travel, and supervise the production of his plays in Europe.
- Thomas S. Noonan, assistant professor of history, without salary, fall quarter, for research concerning the archaeological evidence for the Dnieper Trade Route in the 9th century, A.D., under a grant from the U.S.S.R. Senior Faculty Exchange Program.
- Paul R. O'Connor, professor of chemistry, without salary, spring quarter, to serve as a member of the National Science Foundation Science Liaison Staff in New Delhi, India.
- George L. Perry, professor of economics, without salary, 1969-70, to work at Brookings Institution.
- Herbert L. Pick, Jr., professor of child development, with salary from Career Development Funds, 1969-70, to serve as a staff member at Makerere University College.
- Robert R. Randleman, associate professor of trade and industrial education, 85 percent-time leave without salary, 1969-70, to serve as staff development consultant for the Minneapolis Public School System.
- Nestor M. Riviere, associate professor of mathematics, without salary, winter and spring quarters, for research at the University of Paris.
- Richard L. Rudolph, assistant professor of history, without salary, 1969-70, for research in Vienna on the role of the state in industrialization.
- Richard H. Rust, professor of soil science, without salary, February 1-May 31, 1970, to serve as a consultant to the International Atomic Energy Commission in Cyprus.
- Arthur A. Sagle, associate professor of mathematics, without salary, winter quarter, for research.
- Fred E. Schroeder, assistant professor of humanities, Duluth, without salary, 1969-70, to accept a fellowship from the National Endowment for the Humanities for a study of humanism for the masses.
- Stuart B. Schwartz, assistant professor of history, without salary, 1969-70, to serve as professor at the University of California at Berkeley.
- Robert E. Shaw, assistant professor of psychology, without salary, 1969-70, for research on perception with Dr. James Gilson at Cornell University.
- Hubert J. Sloan, associate dean and professor, Institute of Agriculture and animal science, with salary, March 13-31, 1969, and without salary, April 1-May 15, 1969, to serve as a consultant to the U. S. Agency for International Development and the government of India in a study of progress toward projected goals in the agricultural production program in four Indian states and the development of agricultural universities.

- David H. Smith, associate professor of speech, communication, and theatre arts, without salary, fall quarter, to serve as visiting professor at the University of Colorado.
- Milton Sobel, professor of statistics, without salary, fall and spring quarters, to teach at Stanford University.
- Allan H. Spear, associate professor of history, without salary, spring quarter, to teach at Carleton College.
- Dennis E. Speliotis, associate professor of electrical engineering, without salary, 1969-70, to help form a new corporation in Boston, Mass.
- E. John Staba, chairman and professor, Department of Pharmacognosy and pharmacy, with salary, March 1-June 15, 1970, to accept a research appointment at the Institute of Pharmacognosy, University of Freiberg, Germany.
- Anthony M. Starfield, associate professor of mineral and metallurgical engineering, without salary, December 20, 1969-June 15, 1970, to accept a position at the University of Witwatersrand.
- Wayne A. Stein, associate professor of physics, without salary, March 16-June 15, 1970, to work at the University of California at San Diego.
- Margery W. Stricker, associate professor of English, 50 percent-time leave without salary, 1969-70, for research and writing.
- Frederick M. Swain, professor of geology and geophysics, without salary, 1969-70, to serve as a visiting professor at the University of Delaware.
- Morris F. Teubel, assistant professor of economics, without salary, 1969-70, for association with the Institute of Economics in Research in Argentina.
- Kenneth H. Thomas, assistant professor and extension economist, farm management and Agricultural Extension Service, without salary, January 1-June 30, 1970, to teach at Purdue University.
- James B. Togeas, assistant professor of science and mathematics, Morris, without salary, 1969-70, to work toward a Ph.D. degree at the University of Iowa.
- Aldert van der Ziel, professor of electrical engineering, without salary, spring quarter, to continue the development of the Solid State Device Research Program at the University of Florida.
- Carel M. van Vliet, professor of electrical engineering, without salary, 1969-70, to spend a year at the Mathematics Research Institute of the University of Montreal.
- Herman J. Vossen, professor and area extension agent, livestock and Agricultural Extension Service, with salary, March 16-April 15, 1970, for a broken leg.
- Karl E. Weick, Jr., professor of psychology, without salary, 1969-70, to serve as a visiting professor at the Institute of Social Psychology, Utrecht University.
- Sin M. Wu, assistant professor of science and mathematics, Morris, without salary, 1969-70, for graduate study at the University of Nebraska.

Single Quarter Leaves, 1968-1969

- Robinson S. Abbott, associate professor of science and mathematics, Morris, spring quarter, for research on filamentous green algae.
- Richard S. Abell, associate professor of home economics, fall quarter, for research on textile design manufacturing equipment and textile design school and college equipment and facilities.
- LeRoy T. Anderson, associate professor of electrical engineering, fall quarter, for research on the role of integrated circuits in the electrical engineering curriculum at the University of Minnesota.
- Rutherford Aris, professor of chemical engineering, fall quarter, for research on the foundations of formal chemical kinetics.
- Frank Bencriscutto, associate professor of music, spring quarter, to compose a symphony of major proportions for concert bands and for research on new compositions of major significance written and being written in the period 1966-68 for the concert band.
- James F. Berry, professor of neurology and psychiatry, winter quarter, for research on quantitative column fractionation of gangliosides and acidic phospholipids for nervous tissue.
- Ernest G. Bormann, professor of speech, communication, and theatre arts, spring quarter, for writing a book on the history and criticism of Evangelical religious and reform speaking from 1620 to 1936.

- Landis L. Boyd, professor of agricultural engineering, winter quarter, for development of administrative competency.
- William E. Bradley, associate professor of neurology, winter quarter, for research on the postnatal development of the nerve supply to the urinary bladder of the rabbit with electrophysiologic and electron microscopic techniques.
- Paul A. Cartwright, associate professor of electrical engineering, spring quarter, for research on the utilization of recent Institute of Technology engineering graduates in industry and its relation to the role of the engineering technician, and for research on programs aimed at improving retention of students in engineering curriculums.
- Keith S. Champlin, professor of electrical engineering, spring quarter, for a survey of European solid-state plasma research.
- Strathmore R. Cooke, professor of entomology, fisheries, and wildlife, spring quarter, for research on the Scatopsid fauna of Australia.
- Edward C. Defoe, associate professor of pediatrics, fall quarter, for research on literature and development of background necessary for an objective, authoritative presentation of certain laboratory data accumulated over the past several years.
- Robert Dykstra, associate professor of elementary education, fall quarter, for independent study in linguistics.
- Frederick C. Farrell, Jr., associate professor of French, Morris, spring quarter, for research on innovative programs in instruction and testing in modern foreign languages.
- Edward A. Fletcher, professor of mechanical engineering, fall quarter, for research on fundamental combustion.
- Leon W. Green, professor of mathematics, spring quarter, for research on compact forms for general Riemannian manifolds.
- James C. Gremmels, assistant professor of humanities, Morris, spring quarter, for research on the influence of the Southern town upon the structure, characters, themes, and conflicts in Southern literature.
- Lester E. Hanson, professor of animal science, spring quarter, for research on management and nutrition of swine in prescribed environments.
- Norton M. Hintz, professor of physics, spring quarter, for research on configuration mixing and tests of the goodness of closed shells in nuclei.
- Leverett P. Hoag, professor of geography, Duluth, spring quarter, for research on quantification as a research method in geography.
- James P. Houck, associate professor of agricultural economics, spring quarter, for teaching and study at the Agricultural and Technical State University of North Carolina.
- John R. Howe, Jr., associate professor of history, spring quarter, for research on the social and moral bases of republican ideology in the early United States.
- William S. Howell, professor of speech, communication, and theatre arts, winter quarter, for research on intercultural communication in Hawaii.
- John D. Hurrell, professor of English and speech, communication, and theatre arts, spring quarter, for a book-length study of the contemporary British drama, 1956 to the present.
- Harry C. Johnson, professor of education and psychology, Duluth, spring quarter, for research on innovative practices in elementary education.
- Donald W. Kahn, associate professor of mathematics, fall quarter, for research on the stable homotopy category and its generalizations.
- Paul J. Kellogg, professor of physics, winter quarter, for research on the measurement of electric fields in plasma.
- Thor Kommedahl, professor of plant pathology, summer 1968, for research comparing root-inhabiting fungi in grassland soils of Iceland and Minnesota.
- William Krivit, professor of pediatrics, fall quarter, for research on the management of patients with glycolipidosis.
- Arthur J. Larson, professor of history, Duluth, winter quarter, for research on the Great Lakes-St. Lawrence Tidewater Association.
- Douglas E. Lewis, associate professor of philosophy, fall quarter, for writing a monograph on the problem of the existence of the external world in 17th and 18th century philosophy.

- Irvin E. Liener, professor of biochemistry, summer 1968, for research on the application of the diagonal electrophoretic technique to the characterization of the disulfide bonds of proteolytic enzymes.
- C. Alden Mead, professor of chemistry, winter quarter, for research on solvent and variational techniques in quantum theory.
- Josef A. Mestenhauser, associate professor in the Office of Adviser to Foreign Students, winter quarter, for research on the cultural variables of leadership in conditions of cultural change in the Philippines and Ceylon.
- John K. Munholland, assistant professor of history, spring quarter, for research on the relationship between foreign policy and military planning, using the example of France between World War I and World War II.
- Murray J. Murray, associate professor of internal medicine, fall quarter, for research on iron absorption and its regulation in health and disease.
- Katherine E. Nash, associate professor of studio arts, spring quarter, for research on technology in relation to sculpture and for sculpting.
- Josephine B. Nelson, associate professor of information and agricultural journalism, summer 1968, to participate in an intercultural radio project with Norway.
- Raymond W. Palmby, associate professor in the Agricultural Extension Service, spring quarter, for research on a community-cooperative quality-water-supply program for domestic and livestock use.
- John H. Park, Jr., associate professor of electrical engineering, winter quarter, for research on digital techniques in adaptive communication systems.
- Victor Perman, associate professor of veterinary pathology and parasitology, summer 1968, for research on the kinetics and functional potential of lymphocytes of cattle in induced lymphocytosis.
- Emil Pfender, professor of mechanical engineering, winter quarter, for research on nonequilibrium effects in plasmas, with emphasis on the electrode regimes.
- Robert A. Phillips, assistant professor of horticultural science, winter quarter, for research on garden, landscape, and city planning in Hawaii and Japan.
- William F. Pohl, associate professor of mathematics, spring quarter, for research on the deformation of nondegenerate spherical space curves.
- Samuel H. Popper, professor of educational administration, spring quarter, for research on changing social organization in public school systems.
- Karl H. Potter, professor of philosophy, winter quarter, for writing a book or monograph, *What False Statements Are About*.
- Ralph E. Rapson, professor of architecture, winter quarter, for research on current urban and architectural developments in South America and the historical work and the people who produced it.
- Warren W. Roberts, professor of psychology, spring quarter, for research on central mechanisms of emotions.
- Miles G. Rowe, associate professor in the Agricultural Extension Service, May-July 1969, for research on irrigation systems that might be significant in expanding irrigation in central Minnesota, including a study of types of systems, development of wells, irrigation practices and costs, fertilization methods, and timing.
- Vera M. Schletzer, assistant professor of counseling, spring quarter, for a pilot project exploring methods of obtaining information from industry on the ability requirements and reinforcer systems in certain engineering-technician jobs.
- William B. Schwabacher, associate professor of natural science and mathematics, General College, spring quarter, for research on coordination compounds.
- Solomon Shapiro, associate professor of psychology, philosophy, and family studies, General College, spring quarter, for research on immigrant children with diverse educational and vocational backgrounds currently residing in Israel and the effect of differential experimental training programs upon their vocational development.
- Robert N. Shoffner, professor of animal science, winter quarter, for research on somatic chromosome karyotypes of species selected from the main groups of birds and the use of chromosome phenotype contributions to classification systems, phylogenetic information, and evolutionary hypotheses.
- Vernon L. Simula, assistant professor of elementary education, Duluth, fall quarter, for research on the development of strategies for differential remediation of children with specific learning disabilities and implications for program development.

- Taito O. Soine, professor of medicinal chemistry, fall quarter, for research on new techniques for isolation and characterization of physiologically active natural products.
- Nelson T. Spratt, Jr., professor of zoology, winter quarter, for research on the role of the cellular microenvironment in control of cardiac development.
- Marvin L. Stein, professor of mathematics, spring quarter, for research on computer-science programs and computer centers at foreign universities and research institutes.
- Barbara J. Stuhler, associate professor in the World Affairs Center, winter quarter, for research on the influence of Minnesotans on American foreign policy.
- Harold S. Swofford, Jr., associate professor of chemistry, fall quarter, for research measurement of the vapor pressure over liquid cadmium (solvent) containing small quantities of palladium (solute) at 500° C. using an isopiestic balance.
- W. Wesley Tennyson, professor of educational psychology, winter quarter, for research on the implementation of career guidance in the curriculum.
- Elmer L. Thomas, professor of food science and industries, summer 1968, for research on dairy products and industry practices in Western Europe.
- Donald R. Torbert, professor of art history, winter quarter, for research on the character and sources on contemporary architecture in Mexico and Central America.
- Theodore E. Uehling, associate professor of philosophy, Morris, spring quarter, for completion of *A Commentary to Kant's Critique of Aesthetic Judgment*.
- Leonard H. Unger, professor of English, fall quarter, for research on the poetry of John Donne, with special attention to the cumulative meaning of Donne's *Songs and Sonnets*.
- Edward A. Usenik, professor of veterinary surgery and radiology, summer 1968, for experimental transplantation of bovine lymphoma in normal calves.
- Maurice B. Visscher, professor of physiology, winter quarter, for research on marine vertebrate and invertebrate hearts in Hawaii for possible superiority in a further analysis of the mechanisms of inorganic ions in cardiac physiology, and to begin assembling material from the Library of Congress in Washington, D.C., relating to the reciprocal relations between science and society on the American scene in the 20th century.
- Joseph L. Waldauer, associate professor of Romance languages, spring quarter, for research on the nature of individuality in Restif de la Bretonne's works.
- David A. Ward, associate professor of sociology, spring quarter, to accept a fellowship in law at Harvard University for the 1968-69 academic year.
- John W. Webb, professor of geography, fall quarter, for computer simulation of the settlement of Polynesia and to study long-term population changes in local areas in modernized western countries.
- John R. Winckler, professor of physics and astronomy, spring quarter, for research on the acceleration of electrons in the magnetosphere during auroral storms.
- George C. Winterowd, professor of architecture, fall quarter, for research on the sources of basic influence on the development of Roman architecture.
- Eugene S. Wright, professor of rhetoric, spring quarter, for research on the nature and quality of the previous language instruction experienced by a sizable number of entering students in order that the instruction in the college might be better adjusted to the backgrounds, capabilities, and experiences which students bring to their college work.
- William E. Wright, associate professor of history, spring quarter, for a biographical study of Emperor Joseph II of Austria (1741-1790).
- Tibor Zoltai, professor of geology and geophysics, spring quarter, for research on crystal structure analysis of some sulfides.

Sabbatical Furloughs, 1969-1970

- Joan Aldous, associate professor of sociology, September 16, 1969-September 15, 1970, to write a joint report with Professor Takeji Kamiko of Osaka City University to be presented at the Seventh International Congress of Sociology.
- Ward J. Barrett, associate professor of geography, 1969-70, to complete a monograph on the historical geography of the cane sugar industry of Morelos, Mexico.

- Ellis S. Benson, head and professor, Department of Laboratory Medicine, November 1, 1969-July 31, 1970, for research on protein chemistry of myoglobin and other heart muscle proteins, with time to be spent in Rome, the Scandinavian countries, England, and Holland.
- Henry Borow, professor of psychology, philosophy, and family studies, General College, 1969-70, to study and write on the area of career development and the genesis and maturation of occupational motives in American youth.
- Arnold F. Caswell, professor of music education, 1969-70, to study the recent educational policy of the public schools of France.
- Hans W. Courant, professor of physics, 1969-70, for research on analysis of bubble chamber data at the Institute für Hochenergiephysik, Universität Heidelberg, and for travel.
- Howard T. Davis, professor of chemical engineering, 1969-70, for study and research in the area of scattering theory at the University of Minnesota.
- Harold C. Deutsch, professor of history, 1969-70, for research and writing at the Institute for Contemporary History, Munich, Germany.
- Jan D. Duker, director and professor, School Psychological Services and educational psychology, 1969-70, for research, with time probably to be spent at the Columbia University Educational Testing Service.
- Marvin D. Dunnette, professor of psychology, December 16, 1969-June 15, 1970, for travel to applied and industrial psychology research units, with time to be spent at the University of California at Irvine.
- Rakel L. Erickson, assistant professor of elementary education, 1969-70, for study on Scandinavian literature and folklore and to explore teaching methods and materials used by teachers of children's literature courses.
- E. Gebhard Fuhrken, assistant professor of mathematics, 1969-70, for study and research on the borderline of mathematical logic and algebra, with time to be spent at the University of Colorado.
- Wendell P. Glick, head and professor, Department of English, Duluth, 1969-70, to prepare an edition of the Anti-Slavery and Reform Papers of Henry Thoreau.
- John C. Green, professor of science and mathematics, Duluth, 1969-70, for research and writing on geologically young (Cenozoic) volcanic rocks, with time to be spent in Iceland or the Pacific Northwest.
- Paul S. Hagen, assistant professor of literature, speech, and writing, General College, 1969-70, to study film and observe junior college speech programs in Connecticut, Massachusetts, and California.
- Lorraine S. Hansen, associate professor of education and coordinator of counseling and guidance, Marshall-University High School, 1969-70, to develop a multi-faceted model in career guidance.
- Lois P. Hodgell, assistant professor of art, Morris, 1969-70, for creative work in painting and printmaking.
- Mei Ling Hsu, associate professor of geography, 1969-70, for research and writing on population changes in China, with time to be spent in the Library of Congress, Harvard-Yenching Library, and Academia Sinica in Taipei.
- Joann R. Hubbard, assistant professor of nursing, January 1-June 30, 1970, for study in community health at the Fort Logan (Colo.) Mental Health Center.
- Donovan A. Johnson, professor of secondary education, 1969-70, for research and to visit laboratories in Michigan, California, and Pennsylvania.
- Daniel D. Joseph, professor of aeronautics and engineering mechanics, 1969-70, to study with other scholars and work on a stability monograph, with time to be spent at the Imperial College Department of Mathematics in London.
- Florence Julian, director and professor, Nursing Services, University of Minnesota Hospitals, January 1-June 30, 1970, to study the roles of nurse clinicians and/or clinical specialists in nursing service departments in relationship to head nurses, supervisors, and in-service staff, with time to be spent at other institutions.
- Gopinath Kallianpur, professor of mathematics, 1969-70, for personal contact with some of the probabilists at the Calcutta Indian Statistical Institute, Aarhus University in Denmark, or Moscow University.
- Samuel Kirkwood, professor of biochemistry, September 1, 1969-June 30, 1970, to participate in an exchange program between the U.S.A. and U.S.S.R. Academies of Sciences, with time to be spent at the N. D. Zelinsky Institute of Organic Chemistry of the Academy of Sciences in Moscow.

- Roger A. Kleese, associate professor of agronomy and plant genetics, September 1, 1969-August 31, 1970, for research in biochemical genetics, with time to be spent at University College, London.
- Maurice M. Kreevoy, professor of chemistry, 1969-70, for research and writing in Yugoslavia and England.
- Jooinn Lee, associate professor of social sciences, Morris, 1969-70, for research, with time to be spent in Japan.
- Chun-Jo Liu, professor of East Asian languages, 1969-70, to continue investigation of the style of vernacular Chinese literature.
- Albert Marden, associate professor of mathematics, 1969-70, for research in complex analysis, with time to be spent at the Princeton Institute for Advanced Study.
- Homer E. Mason, associate professor of philosophy, 1969-70, for research and writing, with time to be spent at Oxford.
- Lawrence F. Merl, associate professor of social work, October 1, 1969-June 30, 1970, for research in the relationship of social work education, social work practice, and elementary-secondary education and the relationship of schools of social work, state departments of education, and colleges of education and local school systems in the United States.
- Gordon M. Mork, professor of foundations of education, winter and spring quarters 1970 and fall quarter 1971, to continue studies in international and comparative teacher education in Scandinavia and the Middle East.
- Andrew T. Morstad, professor of dentistry, August 19, 1969-August 18, 1970, for research at the University of Western Australia.
- Gerhard Neubeck, acting director and professor, Family Study Center, 1969-70, for research and writing, with time to be spent in Vallauris, France.
- Eugene F. Pilgram, associate professor and extension agent, Agricultural Extension Service, September 1, 1969-June 30, 1970, for study toward a doctoral degree.
- Marian B. Pour-El, professor of mathematics, 1969-70, for research in mathematical logic, with time probably to be spent in Bristol, England.
- Charles R. Purdy, associate professor of business administration, 1969-70, for research and writing.
- David F. Routon, assistant professor of studio arts, 1969-70, for travel in Europe visiting art museums and other sites of major works of art and for creative work.
- Lyndell B. Scott, professor of social work, 1969-70, to visit schools and agencies to study nontraditional methods in field work teaching.
- Thomas M. Scott, associate professor of political science, 1969-70, to continue work on a study of American urban development.
- L. E. Scriven, professor of chemical engineering, 1969-70, for research and study, to be supported in part by a Guggenheim Fellowship.
- Frank J. Sorauf, professor of political science, 1969-70, for research on interest group management of constitutional test cases in American courts.
- Matthew Stark, assistant professor, Student Activities Bureau, 1969-70, for research on human relations programs in colleges and on recruitment, academic preparation, and retention of minority groups in colleges, and to edit and write a book on counseling.
- Eric Stokes, assistant professor of music, 1969-70, for study and composing, with time to be spent in Vienna, Austria.
- John R. Tester, associate professor of ecology and behavioral biology, 1969-70, for research on aspects of biological rhythms and of spacing and social dispersion which have relevance to vertebrate ecology and behavior.
- Dimitri Tselos, professor of art history, 1969-70, to complete one book and start another.
- Melvin Waldfogel, professor of art history, 1969-70, to study works of art and archives relevant to research in European painting of the 19th century, with time to be spent in Europe.

Deaths, 1968-1970

With deep regret and a profound sense of loss, the University recorded the following deaths during the biennium:

- Ray M. Amberg, Distinguished Service Director and professor emeritus, University Hospitals, December 11, 1968
 Donald R. Bender, assistant professor and extension specialist in home economics, December 29, 1969
 Alice Biester, professor emeritus of home economics, April 15, 1969
 James R. Curtin, assistant chairman and professor, Department of Educational Administration and elementary education, January 13, 1969
 Richard J. Donnelly, director and professor, School of Physical Education, October 3, 1969
 Richard M. Elliott, professor emeritus of psychology, May 6, 1969
 George E. Fahr, professor emeritus of medicine, December 3, 1968
 Howard M. Frykman, clinical professor of surgery, October 2, 1969
 Daryl J. Gibson, associate professor, MacPhail Center for the Performing Arts, May 4, 1969
 Herbert Z. Giffin, professor emeritus of medicine, Mayo Graduate School of Medicine, April 25, 1969
 Nils H. Grimsbo, assistant professor, North Central School and Experiment Station, June 6, 1969
 Alrik Gustafson, chairman and professor, Department of Scandinavian and Center for Northwest European Language and Area Studies, March 24, 1970
 Harold A. Kaplan, clinical assistant professor of medicine, March 5, 1970
 Francis R. Keating, professor of medicine, Mayo Graduate School of Medicine, September 13, 1969
 Edward S. Loye, associate professor of mathematics, April 27, 1969
 Joseph A. Nowotny, associate professor of physical education, June 22, 1969
 Clarence Osell, associate professor of physical education for men, November 2, 1968
 Helen J. Peterson, assistant professor of nursing, April 23, 1969
 Frank J. Polansky, assistant professor of mathematics, September 8, 1969
 Hildred Schuell, professor of neurology, February 17, 1970
 Earl A. Schultz, assistant professor of anesthesiology, April 26, 1969
 David I. Seibel, clinical assistant professor of obstetrics and gynecology, August 18, 1969
 Hylton A. Thomas, professor of art history, March 29, 1969
 Hugh B. Wilcox, professor emeritus of mathematics, April 22, 1969

*Honors and Distinctions***OFFICE OF THE PRESIDENT**

Malcolm C. Moos received an honorary doctor of letters degree from the College of St. Thomas and honorary doctor of law degrees from the University of North Dakota, Georgetown University, and Johns Hopkins University, and served as member, Board of Directors, Harry S Truman Library Institute; trustee, Citizens' Research Foundation; trustee, The Institute for the Future; member, Executive Council, Minnesota Historical Society; member, Minnesota Education Council; member, Commission on Plans and Objectives for Higher Education, American Council on Education; member, Board of Directors, Upper Midwest Research and Development Council; member, Advisory Council, Pioneer Foundation; member, Advisory Council of Presidents, Association of Governing Boards of Universities and Colleges; member, Board of Directors, Governmental Affairs Institute; member, Board of Directors, Overseas Development Council; member, Board of Trustees, Educational Testing Service; member, Commission on Presidential Scholars; member, Executive Committee, American Antiquarian Society of Worcester; member, British-North American Committee; member, Board of Trustees, Carnegie Foundation for the Advancement of Teaching; member, President's Task Force on Priorities in Higher Education; vice

chairman, Federal Relations Committee, and member, Committee on Urban Problems, National Association of State Universities and Land-Grant Colleges; member, Board of Trustees, Public Administration Service; member, National Advisory Panel, Project on Privacy and Computer Data Banks, National Academy of Sciences; member, National Book Committee Board; member, Theodore Roosevelt Award Jury, National Collegiate Athletic Association; and chairman, Midwest Universities Consortium for International Activities.

DIVISIONS OF ADMINISTRATION

Office of the University Attorney

R. Joel Tierney served as first vice president and president-elect, National Association of College and University Attorneys.

Bureau of Institutional Research

John E. Stecklein received a research grant from the U.S. Office of Education and served as chief of party, University of Concepción-University of Minnesota Cooperative Program (Concepción, Chile).

University Press

John Ervin, Jr., served as vice president, Association of American University Presses.

DIVISIONS OF ACADEMIC ADMINISTRATION

Administration

William G. Shepherd was elected to the National Academy of Engineering.

Department of Aerospace Studies

Frederick J. Adelman received the best article award from the Maxwell Air Force Base Air University (Montgomery, Ala.)

Francis T. Sullivan received the Air Force Commendation Medal from Headquarters Fifth Air Force.

Institute of Agriculture

Agricultural Experiment Stations

Robert M. Collins was elected to the National Association of Colleges and Teachers of Agriculture.

Edward C. Frederick received the Alumni Award from the Minnesota State 4-H Organization and an honorary degree from the Minnesota State Future Farmers of America.

Leslie K. Lindor was elected to the Morris Public School Board.

James R. Lofgren received a grant from the Hail Insurance Adjustment and Research Association.

Agricultural Extension Service

Roland H. Abraham received the Distinguished Service Ruby Award from Epsilon Sigma Phi and served as secretary and chairman, Extension Section, Division of Agriculture, National Association of State Universities and Land-Grant Colleges.

Wayne E. Carlson received a life membership in Minnesota Pheasants Unlimited.

Charles J. Christians received an honorary award from the Minnesota State Future Farmers of America and served as secretary-treasurer, Midwestern Extension Section, Society of Animal Science.

LaVern A. Freeh received the Insignia of Knight First Class of the Order of the Lion of Finland from the President of the Republic of Finland.

James O. Hanson was elected to Phi Zeta.

Wayne H. Hanson received a research grant from the National Safety Council.

Leonard L. Harkness served as chairman, Governor's Steering Committee on the White House Conference on Children and Youth, and president, Minnesota Council of Churches.

Edna K. Jordahl received an award from the American Association of Agricultural College Editors and served as secretary, Pi Chapter, Epsilon Sigma Phi.

Beverly B. Lundgren served as president-elect, Home Economists in Homemaking, Minnesota Home Economics Association.

Verna A. Mikesch received a certificate of recognition nomination from Epsilon Sigma Phi.

Curtis D. Norenberg was elected to Alpha Gamma Delta and Alpha Tau Alpha.

Vernal S. Packard, Jr., served as president, Minnesota Sanitarians Association.

Ronald L. Pitzer served as president, Minnesota Council on Family Relations.

Rosella E. Qualey served as president, Minnesota Home Economics Association, and was elected to Gamma Sigma Delta.

Evelyn P. Quesenberry was elected to Gamma Sigma Delta.

Lawrence R. Simonson received a fellowship from Texas A. & M. University and presented papers at the National Recreation and Parks Congress and the annual meeting of the Texas Agricultural Extension Service.

College of Agriculture, Forestry, and Home Economics

Keith N. McFarland served as educational consultant, Agency for International Development (East Africa), and president, Association of Minnesota Colleges.

DEPARTMENT OF AGRICULTURAL AND APPLIED ECONOMICS

John D. Helmberger served as president and member, Executive Board, Minnesota Economics Association.

James P. Houck received a published research award from the American Agricultural Economics Association and served as visiting professor, North Carolina Agricultural and Technical State University.

Harald R. Jensen was invited to write an article for *Encyclopaedia Britannica*.

E. Fred Koller received the Alumni Outstanding Achievement Award from Augustana College (Sioux Falls, S.D.) and served as member, Board of Trustees, American Institute of Cooperation.

Truman R. Nodland served as secretary-treasurer, Minnesota Farm Managers and Rural Appraisers Association.

Willis L. Peterson served as visiting associate professor, University of Colorado.

Malcolm J. Purvis received a travel grant (Minsk, U.S.S.R.) from the U.S. Council of the International Association of Agricultural Economists.

Vernon W. Ruttan served as president-elect and president, American Agricultural Economics Association.

Francis J. Smith, Jr., received the Distinguished Extension Program Award from the American Agricultural Economics Association and served as visiting scholar, Harvard University.

Robert W. Snyder was elected to the American Institute of Planners and Epsilon Sigma Phi.

DEPARTMENT OF AGRICULTURAL ENGINEERING

Landis L. Boyd received the Metal Buildings Manufacturers Association Award from the American Society of Agricultural Engineers and served as post-doctoral scholar and visiting faculty member, University of Michigan, and vice president, American Society of Agricultural Engineers.

Philip R. Goodrich was elected to the Society of the Sigma Xi.

Kenneth A. Jordan received a grant from the National Science Foundation and served as shelter analyst, Office of Civil Defense, and *Agrineer* editor, North Central Region, American Society of Agricultural Engineers.

Roger E. Machmeier received the Educational Aids Competition blue-ribbon awards from the American Society of Agricultural Engineers and served as chairman, Minnesota Section, American Society of Agricultural Engineers.

Jesse H. Pomroy served as vice chairman and chairman, Materials Handling Committee, American Society of Agricultural Engineers.

DEPARTMENT OF AGRONOMY AND PLANT GENETICS

William A. Brun received a research grant from the Cooperative State Research Service, U.S. Department of Agriculture.

Vernon B. Cardwell was elected to the Society of the Sigma Xi.

Laddie J. Elling served as member, Board of Directors, American Society of Agronomy, and member, Board of Directors, Crop Science Society of America.

Herbert W. Johnson received an honorary life membership in the American Soybean Association and an Honorary Premier Seed Grower Award from the Minnesota Crop Improvement Association.

Jean W. Lambert received an award for meritorious service from the American Soybean Association and served as visiting scientist and associate editor, *Crops*, American Society of Agronomy.

Gerald R. Miller was elected to Epsilon Sigma Phi.

Dale N. Moss received travel grants (the Orient and Czechoslovakia) from the Rockefeller Foundation and the International Biological Program Committee, a professional improvement grant from the DuPont Company, and a research grant from the Rockefeller Foundation, and served as chairman and chairman-elect, Climatology Division, American Society of Agronomy.

David E. Polson received a research grant from the Cooperative State Research Service, U.S. Department of Agriculture.

James C. Sentz served as special consultant to the Rockefeller Foundation.

Lawrence H. Smith received the Agronomic Education Award from the American Society of Agronomy.

DEPARTMENT OF ANIMAL SCIENCE

C. Eugene Allen received a research grant from the American Meat Institute Foundation; served as director, American Meat Science Association; and was elected to Gamma Sigma Delta.

Richard D. Goodrich served as foreign corresponding member, Societa Italiana per il Progresso della Zootecnica.

Edmund F. Graham received grants from the Hill Family Foundation, the Minnesota Turkey Growers Association, the North Central Research Council, and the National Institutes of Health.

Robert E. Jacobs served as delegation host, Minnesota Livestock Leaders Goodwill People-to-People Tour (U.S.S.R. and Western Europe).

Garth E. Miller received a research grant from the American Cyanamid Company and served as president, Minnesota Alumni Chapter, Alpha Zeta.

William E. Rempel received a research grant from the National Institutes of Health.

Robert N. Shoffner served as visiting professor, M.D. Anderson Hospital, and director, Poultry Science Association.

George M. Speers was elected to the Society of the Sigma Xi.

Paul E. Waibel received research grants from the Public Health Service, Borden Chemical Company, Peter Hand, Inc., Merck and Company, Hoffmann-LaRoche, Inc., and the Minnesota Turkey Growers Association, and served as president, Gamma Sigma Delta; member, Membership Committee, Society of the Sigma Xi; and member, Membership Committee, Poultry Science Association.

DEPARTMENT OF ENTOMOLOGY, FISHERIES, AND WILDLIFE

Marion A. Brooks served as consultant, Biological Advisers Committee, National Aeronautics and Space Administration.

Laurence K. Cutkomp received a research grant from the Federal Water Pollution Control Administration, U.S. Department of the Interior.

L. D. Frenzel, Jr., received the Dr. Robert G. Green Award from the Minneapolis Jaycees.

Herbert M. Kulman received a grant from the Minnesota Conservation Department and an award from the Southern Forest Insect Work Conference and served as chairman, Division of Entomology and Pathology, Society of American Foresters, and secretary, Section of Ecology and Behavior, Entomological Society of America.

A. Glenn Richards received a grant from the National Institutes of Health, was elected to the Microscope Society of America and the Society of Cell Biology, and served as member, Editorial Committee, Annual Review of Entomology.

DEPARTMENT OF FOOD SCIENCE AND INDUSTRIES

Francis F. Busta received grants from the Public Health Service and the Minnesota Turkey Research and Market Development Board, was elected to the Society for Applied Bacteriology, and served as president-elect, Minnesota Section, Institute of Food Technologists.

SCHOOL OF FORESTRY

Alvin A. Alm received a fellowship from the Northwest Paper Foundation and was elected an associate member of the Society of the Sigma Xi.

John G. Haygreen served as president, Society of Wood Science and Technology, and visiting scientist, University of Missouri and Iowa State University, under sponsorship of the National Science Foundation and the Society of Wood Science and Technology.

Frank H. Kaufert received the Minnesota Forest Industry Service Award and served as member, Board of Directors, American Forestry Association, and member, Board of Directors, Forest History Society.

Arnett C. Mace, Jr., was elected to the Society of the Sigma Xi and served as secretary-treasurer, Southern Chapter, Upper Mississippi Valley Section, Society of American Foresters.

Lawrence C. Merriam Jr., served as visiting scientist and lecturer, University of Illinois and Michigan Technological University, under sponsorship of the Society of American Foresters.

Richard A. Skok served as chairman and vice chairman, Division of Economics and Policy, Society of American Foresters.

John C. Tappeiner II was elected to the Society of the Sigma Xi.

Joseph J. Ulliman was elected to the Society of the Sigma Xi and Gamma Sigma Delta.

Kenneth E. Winsness served as chairman, Southern Minnesota Chapter, Society of American Foresters.

SCHOOL OF HOME ECONOMICS

Sarah A. Cox was elected to the Twin Cities Chapter, Fashion Group, Inc.

Suzanne Davison received the Alumna Award of Distinction from William Woods College and was elected to Gamma Sigma Delta.

Margaret P. Grindereng was elected to Gamma Sigma Delta and Sigma Delta Epsilon and served as secretary, Twin Cities Chapter, Fashion Group, Inc.

Richard N. Hey received the Ernest G. Osborne Award for Excellence in Teaching from the National Council on Family Relations and served as distinguished visiting professor of family study, Virginia Polytechnic Institute; member, Technical Advisory Committee, White House Conference on Children and Youth; and president-elect and president, National Council of Family Relations.

Paul C. Rosenblatt received a research grant from the National Institute of Mental Health and was elected a fellow of the American Anthropological Association.

DEPARTMENT OF HORTICULTURAL SCIENCE

Andrew A. Duncan served as member, Board of Directors, American Society for Horticultural Science.

Leonard B. Hertz served as member, Board of Directors, North Central Weed Control Conference, and secretary, Great Plains Section, American Society for Horticultural Science.

Pen H. Li was elected to the Society for Cryobiology.

Albert J. Linck received a research grant from the National Institutes of Health and served as president-elect, Minnesota Chapter, Society of the Sigma Xi.

Shirley T. Munson was elected to Gamma Sigma Delta.

Paul E. Read was elected to the Minnesota Chapter of the Society of the Sigma Xi and served as chairman, Education Committee, International Plant Propagators Society.

Cecil Stushnoff received a travel grant (Hawaii, Honduras, Colombia, Brazil, and Uruguay) from the Hill Family Foundation.

Orrin C. Turmquist received the Good Neighbor of the Northwest Award from WCCO and a recognition plaque from the Minnesota Vegetable Growers Association and was made an honorary life member in the Potato Association of America.

Conrad J. Weiser received research grants from the Rockefeller Foundation and the Hill Family Foundation.

Richard E. Widmer served as visiting professor and research scholar at the Agricultural Institute (Kinsealy, Ireland), under a grant from the Irish Scholarship Board.

DEPARTMENT OF INFORMATION AND AGRICULTURAL JOURNALISM

Eldon E. Fredericks served as chairman, National Publications Committee, American Association of Agricultural Editors, and communications consultant, University of Minnesota-Ford Foundation Agricultural Project in Chile.

Michael W. Harris was elected to the National Association of Farm Broadcasters.

Milton E. Morris received the Pioneer Award from the American Association of Agricultural College Editors and was elected to Gamma Sigma Delta.

Josephine B. Nelson received the School Bell Award from the Minnesota Education Association and the Alma Award from the Association of Home Appliance Manufacturers and served as state president, National League of American Pen Women.

Harold B. Swanson served as vice president, North Central Chapter, National Agricultural Advertising and Marketing Association, and vice president, Minnesota Adult Education Association.

Raymond S. Wolf received a recognition certificate from KTCA-TV and served as secretary, North Central Chapter, National Agricultural Advertising and Marketing Association.

DEPARTMENT OF PLANT PATHOLOGY

Lucas Calpouzos received a research grant from the U.S. Department of Agriculture.

Clyde M. Christensen received a research grant from the National Institutes of Health.

Milton F. Kernkamp served as treasurer, American Phytopathological Society.

Thor Kommedahl was listed in the *World Who's Who in Science* and served as a Fulbright scholar (Iceland) and vice president and president-elect, American Phytopathological Society.

Chester J. Mirocha received research grants from the National Science Foundation and the National Institutes of Health.

Roy D. Wilcoxson received a grant from the Rockefeller Foundation and served as visiting professor of mycology and plant pathology, Indian Agricultural Research Institute.

DEPARTMENT OF RHETORIC

William M. Marchand served as Danforth Foundation associate.

Ralph G. Nichols received the Distinguished Alumnus Award from the University of Northern Iowa.

DEPARTMENT OF SOIL SCIENCE

Russell S. Adams, Jr., served as chairman, Soil Aspects Section, Weed Science Society of America.

William E. Fenster received an honorable mention award from the American Society of Agronomy and a grant from the Farmers Union Foundation and was elected to Gamma Sigma Delta.

Lowell D. Hanson received an excellence in journalism award from the American Society of Agronomy.

William P. Martin served as member, National Agricultural Library Network Project, Land-Grant Colleges and Universities and EDUCOM.

Curtis J. Overdahl received a grant from the Farmers Union Foundation.

Charles A. Simkins received a silver plaque from the Chilean Ministry of Agriculture and was elected to Epsilon Sigma Phi.

James B. Swan served as president, Minnesota Chapter, Soil Conservation Society of America.

College of Biological Sciences

James Ford Bell Museum of Natural History

Richard E. Barthelemy served as president-elect, Minnesota Association for Conservation Education.

Charles W. Huver received a research grant from the American Cancer Society and an outstanding contribution award from the Minnetonka Fish and Game Club and served as visiting associate professor, Michigan State University Kellogg Gull Lake Biological Station, and chairman, Environmental Quality Advisory Board, St. Paul Board of Water Commissioners.

Harrison B. Tordoff served as council member, American Ornithologists Union.

Department of Biochemistry

Victor A. Bloomfield received a fellowship from the Alfred P. Sloan Research Foundation and was elected to the American Society of Biological Chemists.

Peter J. Chapman received a research grant from the Public Health Service.

LaVell M. Henderson received a research grant from the National Institutes of Health and the Borden Award in Nutrition from the American Institute of Nutrition and participated in the White House Conference on Nutrition and Health.

Robert Jenness served as research associate, New Mexico Highlands University.

Irvin E. Liener received a travel award from the Wellcome Foundation to study at the Laboratory of Molecular Biology (Cambridge, England).

Rex E. Lovrien received a research grant from the National Science Foundation.

Huber R. Warner received a research career development award from the National Institutes of Health.

Department of Botany

Albert W. Frenkel received a research grant from the Public Health Service.

Eville Gorham received research grants from the National Science Foundation and the Atomic Energy Commission and served as George C. Wheeler Distinguished Lecturer at the University of North Dakota; member, Editorial Board, American Society of Limnology and Oceanography; and member, Board of Directors, Minnesota Committee for Environmental Information.

John W. Hall received a research grant from the National Science Foundation and served as secretary-treasurer, Paleobotanical Section, Botanical Society of America; council member, American Association of Stratigraphic Palynologists; and representative, International Organization of Paleobotanists.

Donald B. Lawrence served as visiting lecturer, Australian National University, and trustee, Minnesota Chapter, Nature Conservancy.

Douglas C. Pratt received a research grant from the National Science Foundation and served as chairman, state 41st District, and vice chairman, federal 5th District, Democratic Farmer Labor Party.

Department of Genetics and Cell Biology

Ralph E. Comstock received a research grant from the National Institutes of Health.

William P. Cunningham served as vice president, Minnesota Electron Microscope Society.

David P. Fan was elected to the American Society of Microbiology.

Daniel L. Hartl received a grant from the National Science Foundation.

Robert K. Herman received grants from the National Institute of Arthritis and Metabolic Diseases.

Alan B. Hooper received a research grant from the National Science Foundation and served as visiting professor of biology, Massachusetts Institute of Technology, and consultant, Dacca University Summer Science Institute, International Institute for Education.

Department of Zoology

William S. Herman received a research grant from the National Science Foundation.

Judson D. Sheridan received a grant from the National Cancer Institute, was elected to the New York Academy of Sciences and the Physiological Society of England, and was named to the Outstanding Young Men of America.

Franklin G. Wallace served as council member at large, American Society of Parasitologists; member, Editorial Board, Society of Protozoologists; presiding officer, Annual Midwest Conference of Parasitologists; and member, Tropical Medicine and Parasitology Study Group, National Institute of Allergy and Infectious Diseases.

School of Business Administration

Administration

C. Arthur Williams, Jr., received the *Journal of Risk and Insurance* Award from the American Risk and Insurance Association and was elected to the American Academy of Actuaries.

Department of Accounting

Gordon B. Davis received a research grant from the Office of Naval Research and served as member, Executive Committee, Minnesota Chapter, Association for Computing Machinery.

John C. Gray was elected to the Financial Executives Institute and served as member, Board of Directors, Minneapolis Chapter, National Association of Accountants, and member, Board of Directors, Twin Cities Chapter, Institute of Internal Auditors.

John K. Simmons received an award for outstanding contribution to accounting literature from the American Institute of Certified Public Accountants.

Department of Industrial Relations

George W. England received research grants from the Office of Naval Research and the Midwest Universities Consortium for International Activities and served as visiting lecturer, Kyushu University (Fukuoka, Japan), and presented a paper at the Organizational Behavior Symposium (Amsterdam, Holland).

John J. Flagler received grants from the U.S. Office of Economic Opportunity, the Minnesota Division of Vocational Rehabilitation, and the U.S. Department of Labor, and served as first vice president, University Labor Education Association, and chairman, International Labor Studies Curriculum Committee, Histadrut Cultural Exchange Institute.

Thomas A. Mahoney served as visiting professor of business administration, Stellenbosch University (South Africa).

Department of Management and Transportation

Nicholas A. Glaskowsky, Jr., received a research grant from the 1907 Foundation, was elected to the American Society of Traffic and Transportation, and served as visiting professor, Stanford University and Chalmers University of Technology (Gothenburg, Sweden).

Paul V. Grambsch received the distinguished alumnus award from North Central College and served as president, American Association of Collegiate Schools of Business.

Department of Management Sciences

Gary M. Andrew received the *Journal of Risk and Insurance* Award from the National Association of Independent Insurers and the Nicolas Andry Award from the Association of Bone and Joint Surgeons and served as chairman, Upper Midwest Chapter, Institute of Management Sciences.

Norman L. Chervany received a research grant from the Office of Naval Research and served as president-elect, Upper Midwest Chapter, Institute of Management Sciences.

John Neter received the *Journal of Risk and Insurance* Award from the National Association of Independent Insurers and a research grant from the National Science Foundation and served as council member, American Statistical Association, and president, University of Minnesota Chapter, American Association of University Professors.

Raymond E. Willis served as visiting professor, University of Montana.

Department of Marketing and Business Law

Edwin H. Lewis served as visiting professor of marketing, University of Lancaster.

Department of Criminal Justice Studies

David A. Ward received a fellowship from Harvard University Law School.

School of Dentistry

Barbara J. Bartholdi served as recording secretary, Minnesota Dental Hygienists Association.

James H. Butler served as vice chairman, Dental Anatomy and Occlusion Section, American Association of Dental Schools.

Lars E. Folke received a grant from the National Institute of Dental Research and the Ulf Posselt Memorial Award from the Swedish Dental Association and served as secretary-treasurer, Minnesota Section, International Association for Dental Research.

Richard J. Goodkind received a certificate of merit from the American Prosthodontic Society and the essayist award from the American Dental Association and was elected to the American Board of Prosthodontics.

Anna T. Hampel was elected to the American College of Dentists.

Mellor R. Holland served as editor, *Northwest Dentistry*, Minnesota, North Dakota, and South Dakota Dental Associations.

Robert J. Isaacson received research grants from the National Institute of Dental Research; was named Professor of the Year by the Century Club; was elected to the Edward H. Angle Society, the Society for Experimental Biology and Medicine, and the American College of Dentists; and served as member, Dental Training Committee, National Institute of Dental Research.

James R. Jensen received grants from the Public Health Service, was listed in *Outstanding Educators of America*, and served as visiting lecturer and adviser, University of Saigon School of Dentistry; visiting lecturer, University of Southern Australia School of Dentistry; consultant, World Health Organization and Pan American Health Organization; and education consultant, Vietnam Education Project, U.S. Agency for International Development.

Lawrence H. Meskin received a traveling fellowship from the World Health Organization.

Edmund S. Olsen, Jr., served as visiting professor, Aichigakuin University (Nagoya, Japan); president, American Association of Hospital Dentists; and chairman, Council on Dental Materials and Devices, American Dental Association.

Eugene E. Petersen was elected to the Royal Society of Health (England) and served as member, Education Committee, American Academy of Oral Roentgenology, and secretary, Dental Section, and council delegate, American College Health Association.

Erwin M. Schaffer served as president-elect, American Academy of Periodontology.

Heddie O. Sedano was elected to the American Academy of Oral Pathology.

Quenton T. Smith was elected to the Society for Experimental Biology and Medicine.

Emil W. Steinhauser received the Wassmund Prize from the German Society of Maxillofacial Surgeons, was elected to the Swiss Society of Plastic Surgeons, and served as Privat-Dozent, University of Zurich.

Cesar R. Umana was elected to the Society of the Sigma Xi and the Society for Experimental Biology and Medicine.

Robert A. Vickers was elected to the Minnesota Society of Oral Surgeons and served as council member, American Academy of Oral Pathology.

Daniel E. Waite received an honorary degree from the Ceylonese Dental Society and the Hope Award for service in Ceylon and served as visiting professor, University of Ceylon School of Dentistry; clinician, Minnesota State Dental Association; and vice chairman, Program Committee for Oral Surgery, American Dental Association.

Carl J. Witkop received a training grant from the National Institute of Dental Research, was elected to the Society of the Sigma Xi and Omicron Kappa Upsilon, and served as secretary, American Society of Human Genetics; vice president, American Academy of Oral Pathology; consultant in genetics, National Institute of Dental Research; associate editor, *Compendium of Congenital Malformations*, March of Dimes National Foundation; and first vice chairman, 3rd Congressional District, Democratic Farmer Labor Party.

Douglas H. Yock served as president, American Academy of Crown and Bridge Prosthodontics, and chairman, Fixed Prosthodontics Section, American Association of Dental Schools.

College of Education

Administration

Robert J. Keller served as vice president and president, American Association for Higher Education, and chairman, Committee on Publication and Information Service, member, Board of Directors, and member, Executive Board, Commission on Institutions of Higher Education, North Central Association of Secondary Schools and Colleges.

Jack C. Merwin served as president-elect, National Council on Measurement in Education.

Wayne W. Welch received grants from the National Center for Educational Research and Development, Rensselaer Polytechnic Institute, and the National Science Foundation; was elected a fellow of the American Association for the Advancement of Science; and served as committeeman at large, Education Section, American Association for the Advancement of Science, and member, Board of Directors, National Association for Research in Science Teaching.

Frank B. Wilderson, Jr., received a research award from the Ford Foundation and served as visiting professor of urban education, University of Michigan at Ann Arbor.

Department of Agricultural Education

Harry W. Kitts served as chief, University of Parana/University of Minnesota/Ford Foundation Project (Curitiba, Brazil), and consultant, Brazilian Ministry of Education and Culture.

R. Paul Marvin served as consultant, International Bank for Reconstruction and Development (Tanzania).

Martin B. McMillion served as visiting assistant professor of agricultural education, Federal University of Brazil, and national secretary-treasurer, Alpha Tau Alpha, and was listed in *2000 Men of Achievement* and *Personalities of the West and Midwest*.

Edgar A. Persons served as visiting professor of agricultural education, University of Nebraska, South Dakota State University, and North Dakota State University.

Milo J. Peterson received the Distinguished Service Award from the Minnesota Association of Future Farmers of America, an honorary membership in the Pennsylvania Vocational Agriculture Teachers Association, and an honorary life membership in the National Vocational Agriculture Teachers Association, and served

as resource person, World Conference on Agricultural Education and Training (Copenhagen, Denmark).

Institute of Child Development

John H. Flavell received a research grant from the National Institute of Child Health and Human Development and served as fellow, Center for Advanced Study in the Behavioral Sciences, and president, Division of Developmental Psychology, American Psychological Association.

Willard W. Hartup served as member, Council of Representatives, American Psychological Association.

Shirley G. Moore received a research grant from the National Institute of Child Health and Human Development.

Herbert L. Pick, Jr., received a career development fellowship from the National Institutes of Health, served as visiting professor, Makerere University College, and was named a fellow of the American Psychological Association and the American Association for the Advancement of Science.

Harold W. Stevenson received a project grant from the National Institutes of Health and served as visiting professor, University of Hawaii; president, Society for Research in Child Development; and member, Executive Committee, Division of Behavioral Sciences, National Research Council.

Albert J. Yonas received a research grant from the National Institute of Child Health and Human Development.

Department of Educational Administration

Clifford P. Hooker received a research grant from the National Educational Finance Project and served as member, Board of Trustees, University Council for Educational Administration.

Don A. Morgan received a fellowship from the University of California at Los Angeles and a grant-in-aid for the First Symposium on Educational Programs for By-Passed Populations from the Southwestern Regional Cooperative Education Laboratory.

Neal C. Nickerson, Jr., received a service award from the Gamma Omicron Chapter of Phi Delta Kappa and served as principal, Oak-Land Junior High School.

Department of Educational Psychology

Marian D. Hall was elected a fellow of the American Orthopsychiatric Association and a diplomate of the American Board of Examiners in Professional Psychology and served as member, Council of Representatives, and member, Executive Committee, Division of School Psychology, American Psychological Association.

Department of Elementary Education

Robert Dykstra served as chairman, Elementary Section Committee, National Council of Teachers of English.

Department of Foundations of Education

Ayers Bagley served as director of publications, Society of Professors of Education, and chairman, Nominating Committee, American Education Studies Association.

Robert H. Beck served as president, Society of Professors of Education, and member, Executive Council, American Education Studies Association.

Department of Home Economics Education

Marjorie M. Brown received a grant from the State Department of Education and served as visiting professor of home economics education, Southern Illinois University.

Gwendolyn A. Newkirk was elected a national honorary member of Phi Upsilon Omicron and served as treasurer, American Home Economics Association, and secretary, Minnesota Home Economics Association.

Louise A. Stedman was elected to Gamma Sigma Delta and served as delegate of the American Home Economics Association to the Permanent Council, International Federation of Home Economics meeting (Germany).

Emma B. Whiteford was elected to Epsilon Chapter, Pi Lambda Theta, and was listed in *Who's Who in American Education* and *Leaders in Education*.

Department of Industrial Education

William A. Kavanaugh received a grant from the government of Turkey and received recognition for outstanding work (Turkey) from the U.S. Agency for International Development.

Jerome Moss served as president, American Vocational Education Research Association.

Department of Physical Education for Men

John F. Alexander served as chairman, Fitness Section, American Association for Health, Physical Education, and Recreation.

G. Robert Mowerson served as vice chairman, U.S. Men's Olympic Swimming Committee, and chairman, Staff Screening Committee for Men's Swimming, Pan-American Games and Olympic Games.

Clarence E. Mueller served as president-elect, National Intramural Association; secretary-treasurer, National College Physical Education Association for Men; and president, Sigma Delta Psi.

Department of Physical Education for Women

Marjorie U. Wilson was named an honorary patron of Delta Psi Kappa.

Psycho-Educational Center

Evelyn N. Deno was made a diplomate in school psychology, American Psychological Association, American Board of Professional Psychologists.

Department of Psychological Foundations of Education

William M. Bart was elected to the Society for Research in Child Development and the American Association for the Advancement of Science.

Paul E. Johnson received a research grant from the U.S. Office of Education.

S. Jay Samuels received a grant from the U.S. Office of Education and served as speaker, Jack Holmes Memorial Lectures, International Reading Association; visiting associate professor, University of California at Berkeley; and chairman, Membership Committee, and chairman, Program Committee, American Educational Research Association.

Bureau of Recommendations

William E. Ramey was elected to the American Psychological Association and the Minnesota Psychological Association.

Student Personnel Office

Donald H. Blocher received a Fulbright lectureship to the University of Keele and an award from the Harvard Graduate School of Education and served as member, Governing Board, Division of Counseling Psychology, American Psychological Association.

Charles J. Glotzbach served as treasurer, Teacher Education Division, Student Personnel Association, American Personnel and Guidance Association.

Department of Recreation and Park Administration

Jackson M. Anderson served as vice president, American Association for Health, Physical Education, and Recreation.

Frederick M. Chapman was named a distinguished fellow of the National Therapeutic Recreation Society and served as international volunteer, International Recreation Association, and visiting professor, University of Singapore.

Glenn W. Cheatham served as chairman, Scholarship Committee, Minnesota Recreation and Park Association.

Karen M. Smith served as member, Advisory Council, State Section, National Therapeutic Recreation Society, and chairman, Therapeutic Recreation Section, Minnesota Recreation and Park Association.

Department of Secondary Education

Charles R. Hopkins served as visiting professor of business education, University of Montana; president, Phi Chapter, Delta Pi Epsilon; and vice president, Minnesota Business Education Association.

Neville P. Pearson received the honorary George Williams Fellowship from the University Young Men's Christian Association and served as chairman, Scholarship and Awards Committee, National Education Association.

Donald C. Ryberg served as vice president, American Association of Teachers of Slavic and East European Languages.

Department of Special Education

Bruce E. Balow received research grants from the U.S. Office of Education and was named Man of the Year by the *St. Anthony Village Sun* newspaper.

Maynard C. Reynolds received a grant from the U.S. Office of Education.

Frank H. Wood served as chairman, Quality Integrated Education Subcommittee, State Task Force on Quality Integrated Education, Minnesota State Board of Education.

General College

Richard D. Byrne was elected to Phi Kappa Lambda.

Virginia M. Juffer was elected to Omicron Nu.

Sander M. Latts served as president-elect, Minnesota Council on Family Relations.

J. Mark Ludlow served as chairman, Board of Directors, Minnesota Distributive Education Clubs of America, Inc.

J. Frederick Neet was named Professor of the Year at Huron College.

Louis T. Safer received oil painting, oil pastel, sculpture, and drawing awards at the Minnesota State Fair; exhibited works of art at a one-man show at Normandale State Junior College; and served as chairman, State Convention Conference, Art Educators of Minnesota.

Catherine M. Warrick was elected to the Alpha Zeta Chapter, Tau State Delta Kappa Gamma.

General Extension Division

Gordon J. Amundson received the First Honor Award, First National Indian Education Conference, Division of Conferences and Institutes, National University Extension Association, and served as member, Executive Committee, Division of Conferences and Institutes, National University Extension Association.

Wallace A. Caryl received a first-place special publications award from the U.S. Civil Defense Council and served as secretary, U.S. Civil Defense Council.

Stoddard G. Cortelyou served as president-elect, Minnesota Chapter, American Society for Public Administration.

William D. Dean was elected to the Minnesota Professional Chapter, Sigma Delta Chi, and served as president, Minnesota Videographic Society, and member, Board of Directors, Minnesota Professional Chapter, Sigma Delta Chi.

Alice I. Goacher was elected to Delta Phi Delta.

Clara Kanun served as secretary-treasurer, Research Section, National University Extension Association.

G. Harry Lindahl served as board member, Minnesota Adult Education Association.

Willard D. Philipson received a merit award in management training from the Governor of Minnesota, was elected to the National Geographic Society, and served as president, Minnesota Adult Education Association, and chairman, National Convention, Department of Audio-Visual Instruction.

William C. Rogers served as secretary-treasurer, Society for Citizen Education in World Affairs, and was listed in *Who's Who in America*.

Barbara J. Stuhler received the Distinguished Alumni Award from MacMurray College.

Willard L. Thompson served as chairman, Council on Extension, National Association of State Universities and Land-Grant Colleges.

Roger G. Young served as committee chairman, Division of Independent Study, National University Extension Association.

Graduate School

Administration

Francis M. Boddy served as member, Board of Directors, National Bureau of Economic Research.

Bryce Crawford, Jr., received the Minnesota Award from the Minnesota Section of the American Chemical Society and served as vice president and president, Association of Graduate Schools; chairman, Research Committee, Graduate Record Examinations Board; chairman, Advisory Committee, Office of Scientific Personnel, National Research Council; director, American Chemical Society; editor, *Journal of Physical Chemistry*; member, Advisory Committee on Graduate Education, American Council on Education; and director, North Star Research and Development Institute.

Hormel Institute

Ralph T. Holman received research grants from the National Dairy Council, the U.S. Department of Agriculture, and the National Institutes of Health, and served as member-at-large, Governing Board, American Oil Chemists' Society.

Howard M. Jenkin received research grants from the National Council to Combat Blindness, the Office of Naval Research, the World Health Organization, and the National Institutes of Health, and served as vice president and president, Henrici Society; associate editor, *Journal of Bacteriology*, American Society of Microbiology; and associate editor, *In Vitro*, Tissue Culture Association.

Walter O. Lundberg received the Chevreul Medal from the French Association of Lipid Scientists, the Marques de Acapulco Medal from the Spanish Institute for Fat Research, and research grants from the National Institutes of Health; was elected to Phi Tau Sigma and to honorary membership in the Asociacion Argentina De Farmacologia Y Terapeutica Experimental; and served as president, World Congress, International Society for Fat Research and American Oil Chemists' Society.

Harald H. Schmid received a research grant from the National Institutes of Health and served as visiting professor, University of Chile.

Mayo Graduate School of Medicine

Leonard A. Aaro served as member, National Nominating Committee, Obstetrics and Gynecology Association, and assistant secretary-treasurer, James E. Fitzgerald Ob-Gyn Travel Club.

Martin A. Adson served as president, Minnesota Surgical Society.

Alexander Albert received grants from the National Institutes of Health and the Ortho Pharmaceutical Company.

Harold A. Andersen served as secretary, Section on Diseases of the Chest, American Medical Association; member, Editorial Board, American Society of Gastrointestinal Endoscopy; and chairman, Minnesota Pollution Control Agency.

Claude D. Arnaud received grants from the National Institutes of Health.

Archie H. Baggenstoss received grants from the National Institutes of Health and the Irwin Strasburger Memorial Medical Foundation and served as president, American Association for Study of Diseases of the Liver.

Robert C. Bahn served as chairman, Membership Committee, Special Interest Group for Biomedical Computing.

Hillier L. Baker, Jr., served as visiting professor of radiology, Montefiore Medical Center and Indiana University Medical Center.

Lloyd G. Bartholomew served as chairman, Section of Gastroenterology, American Medical Association.

James B. Bassingthwaighe received grants from the National Institutes of Health, the American Heart Association, and Control Data Corporation.

James A. Bastron served as member, Governing Council, Society of Clinical Neurologists.

George W. Beeler, Jr., received a grant from the National Institutes of Health.

Kenneth G. Berge received a grant from the National Institutes of Health.

Harry F. Bisel received grants from the National Institutes of Health and the Wisconsin Clinical Drug Evaluation and served as vice president, National Cancer Institute.

John R. Blinks received a grant from the National Institutes of Health and served as established investigator, American Heart Association; member, Editorial Board, and field editor, *Journal of Pharmacology and Therapeutics*; chairman, Third Gordon Research Conference on Heart Muscle; and member, Editorial Board, *Circulation Research*.

E. Walter Bowie received a grant from the National Institutes of Health.

Robert O. Brandenburg served as chairman, Community Program Committee, American Heart Association.

Arnold L. Brown, Jr., received a grant from the National Institutes of Health and served as Gladys Henry Dick Visiting Professor, Evanston Hospital and Northwestern University.

Joe R. Brown received a grant from the National Multiple Sclerosis Association and served as vice president, American Academy of Neurology, and chairman, Academy of Aphasia.

Eran O. Burgert, Jr., served as visiting professor, University of Oklahoma, U.S. Air Force Academy Hospital, and Gunderson Clinic.

Edmund C. Burke served as secretary-treasurer, Northwest Pediatric Society.

James C. Cain received the Ashbel Smith Distinguished Alumnus Award and served as member, National Liaison Committee, American Gastroenterological Association; member, President's Health Advisory Committee; chairman, National Advisory Committee on Selective Service; and member, Health Resources Advisory Committee.

David T. Carr received a grant from Swanson Enterprises and served as chairman, National Air Conservation Committee, and member, Executive Committee, American Cancer Society.

Earl T. Carter received grants from the Aviation Insurance Agency and the Office of Economic Opportunity and served as national consultant, Office of the Surgeon General, U.S. Air Force; member, Executive Council, trustee, and vice chairman, Aerospace Medicine, American Board of Preventive Medicine; and member, Civilian Air Surgeon Advisory Council for Research, Federal Aviation Agency.

Donald S. Childs, Jr., served as visiting professor, University of Wisconsin, and member, Board of Trustees, and chairman, Training Program and Requirements, American Board of Radiology.

Oscar T. Clagett was named an honorary fellow of the Royal College of Surgeons.

Charles F. Code received grants from the National Institutes of Health and served as second annual lecturer, University of Pennsylvania; Lowell Lecturer, Harvard University Medical School; chairman, Nomenclature Committee, Physiological Sciences International Union; and associate editor, *Canadian Journal of Physiology*.

D. Thane Cody received a grant from the National Institutes of Health.

H. Neal Coleman III received a grant from the Minnesota Heart Association.

Daniel C. Connolly served as visiting professor, University of Missouri.

Talbert Cooper received grants from the National Institutes of Health.

Kendall B. Corbin served as member, Board of Editors, *Geriatrics Digest*.

Mark B. Coventry served as visiting consultant, Care Medico Tunisia, and visiting professor, Hartford and Newington Hospitals.

Ormond S. Culp served as urologic consultant, U.S. Air Force, and visiting professor, Peter Bent Brigham Hospital.

David C. Dahlin served as special consultant, Armed Forces Institute of Pathology.

Frederic L. Darley received a grant from the National Institutes of Health and served as chairman, Governing Board, Academy of Aphasia.

David G. Decker served as secretary, Central Association of Obstetrics and Gynecology.

James G. Delano served as vice chairman, Governor's Advisory Board for Gifted, Handicapped, and Exceptional Children.

James H. DeWeerd served as Evan P. Helfaer Visiting Professor, Marquette School of Medicine.

G. Roy Diessner served as member, Editorial Board, *Minnesota Medicine*, and chairman, Finance Committee, Minnesota State Medical Association.

James V. Donadio, Jr., received a grant from the Atlas Chemical Company.

David E. Donald received a grant from the National Institutes of Health.

Bruce E. Douglass served as member, Board of Directors, Occupational Health Institute, and member, Board of Directors, Industrial Medical Association.

James W. DuShane received grants from the National Institutes of Health and served as member, Editorial Board, *Circulation*.

Peter J. Dyck received grants from the National Institutes of Health and the Hill Family Foundation and served as visiting lecturer, Indiana University, McMaster University, Massachusetts General Hospital, and University of Washington.

Lillian R. Elveback received a grant from the National Institutes of Health and served as council member, Statistical Section, American Public Health Association.

Andrew C. Engel received grants from the National Institutes of Health and the Hill Family Foundation.

John B. Erich served as regional vice president, American Fracture Association.

Donald J. Erickson served as area consultant in physical medicine and rehabilitation, Veterans Administration; member, Subcommittee on Care of Handicapped Child, Minnesota State Department of Welfare; and president, Minnesota Physiatric Society.

Virgil F. Fairbanks received a grant from the American Cancer Society.

Albert Faulconer, Jr., served as consultant in anesthesiology, Office of the Surgeon General, U.S. Army; member, Executive Committee, Advisory Board for Medical Specialty; and chairman, Anesthesia Residency Review Committee, American Board of Anesthesiology.

William T. Foulk, Jr., served as chairman, Advisory Committee, American Gastroenterological Association; member, Editorial Board, *Gastroenterology*; and member, Gastroenterology Subspecialty Board, American Board of Internal Medicine.

Ward S. Fowler received a grant from the National Institutes of Health and served as member, Anesthesiology Training Committee, National Institutes of Health.

Robert L. Frye received a grant from the National Institutes of Health. Clifford F. Gastineau served as member, Editorial Board, *Diabetes*, and editor, *Forecast*, American Diabetes Association, and president and secretary-treasurer, Central Clinical Research Club.

Joseph E. Geraci served as member, Antibiotic and Chemotherapy Committee, American College of Chest Physicians.

Emilio R. Giuliani received a grant from the Northlands Regional Medical Program.

Gerald J. Gleick received grants from the National Institutes of Health, the Eli Lilly Company, and the Minnesota Arthritis Foundation.

Manuel R. Gomez received a grant from the National Institutes of Health.

Clarence A. Good, Jr., served as member, Executive Council, and president, American Roentgen Ray Society, and secretary, American Board of Radiology.

Allan B. Gould, Jr., served as director, American Society of Anesthesiologists, and president-elect, Minnesota Society of Anesthesiologists.

Jack D. Grabow served as councillor, Central Association of Electroencephalographers, and examiner, American Board of Psychiatry and Neurology.

Lloyd E. Harris served as president, Northwest Pediatric Society; vice president, American Board of Pediatrics; and participant, Sir Samuel Bedson Seminar (Cambridge, England).

Carlos E. Harrison, Jr., received a grant from the National Institutes of Health.

Alvin B. Hayles served as visiting professor of pediatrics, University of Ala-

bama School of Medicine, and visiting faculty member, Massachusetts General Hospital and Washington University School of Medicine.

Edward D. Henderson served as civilian consultant, Fifth U.S. Army, Society of Medical Consultants to the Armed Forces.

Lowell L. Henderson served as secretary, Section of Allergy, American Medical Association; member, Board of Medical Directors, Allergy Foundation of America and Medic-Alert Foundation; chairman, Grants and Awards Education Council, American College of Allergists; member, Editorial Board, *Annals of Allergy*; treasurer, International Association of Allergology; and secretary and second vice president, American Association of Certified Allergists.

Norman G. Hepper served as a member, Executive Board, Minnesota Respiratory Health Association.

John R. Hill served as editor-in-chief, *Diseases of Colon and Rectum*; vice president, American Proctologic Society; and associate member, American Board of Colon and Rectal Surgery.

John R. Hodgson served as president, Radiologic Society of North America.

Alan F. Hofmann received research grants from the Hill Family Foundation and the Meade-Johnson Company and served as visiting professor of medicine, Ohio State University.

Robert W. Hollenhorst received a grant from the National Institutes of Health and served as consultant, Services for the Blind, State Department of Public Welfare, and Henry Balconi Lecturer, St. Mary's Hospital (Rochester, N.Y.).

William H. Hollinshead served as chairman, Anatomy Test Committee, National Board of Medical Examiners.

Colin B. Holman served as president, American Society of Neuroradiology.

Frank M. Howard, Jr., received a grant from the National Institutes of Health.

Gene G. Hunder received a grant from the Minnesota Arthritis Foundation.

James C. Hunt received grants from the National Institutes of Health.

Robert E. Hyatt received grants from the National Institutes of Health and the American Thoracic Society.

Raymond L. Jackman served as president, American Proctologic Society, and president, Minnesota State Medical Association.

Nai-Siang Jiang received a grant from the National Institutes of Health.

William J. Johnson received grants from the National Institutes of Health and the Public Health Service.

Jenifer Jowsey received a grant from the National Institutes of Health and served as visiting orthopedist, Mount Sinai Hospital (New York, N.Y.), and visiting biophysicist, Massachusetts General Hospital.

Edward S. Judd served as governor, American College of Surgeons, and visiting professor, University of Melbourne, University of Sydney, and University of Alabama.

John L. Juergens served as president, Minnesota Heart Association.

Alfred G. Karlson received a grant from the Minnesota Respiratory Health Association and served as member, Board of Directors, and member, Guidance Committee on the Tuberculosis Program, National Tuberculosis Association.

Thomas P. Kearns served as vice president, Minnesota Academy of Ophthalmology and Otolaryngology.

Patrick J. Kelly received a grant from the National Institutes of Health and served as president-elect, Orthopaedic Research Society.

Roger D. Kempers served as member, Board of Directors, Children's Home Society.

Frederick W. Kerr received grants from the National Institutes of Health.

Joseph M. Kiely served as visiting chief of medicine, Atlantic City Hospital; member, Residency Review Committee, American Medical Association; and member, Editorial Board, *Year Book of Cancer*.

Robert R. Kierland served as vice president, International Society of Tropical Dermatology; member, Special Medical Advisory Group, Veterans Administration; and president, American Dermatological Association.

Owings W. Kincaid served as consultant in cardiovascular diseases, Alaska Native Health Service; member, National Consulting Board, Computerized Disease Manikin Educational Project, American Heart Association; and chairman, Fellowships Committee, American College of Radiology.

Donald W. Klass received a grant from the National Institutes of Health and served as chairman, Public and Legislative Relations Committee, and president, American Encephalographic Society, and vice president, Minnesota Society of Neurological Sciences.

Bruce A. Kottke received a grant from the National Institutes of Health.

Leonard T. Kurland received grants from the National Institutes of Health and served as chairman, Society of Neuroepidemiology, American Academy of Neurology; member, Control Study Section on Epidemiology and Disease, National Institutes of Health; member, Advisory Committee on Air Pollution Criteria, Public Health Service; and special consultant, Pesticide Advisory Committee, Department of Health, Education, and Welfare.

Edward H. Lambert received grants from the National Institutes of Health and the Hill Family Foundation.

William R. Laney received a grant from the National Institutes of Health and served as vice president-elect, American Cleft Palate Association, and president, Minnesota Prosthodontic Society.

Donald D. Layton, Jr., served as visiting faculty member, University of Oklahoma.

James W. Linman received a grant from the National Institutes of Health.

Karl A. Lofgren served as member, Committee on Military and Veterans Affairs, Minnesota State Medical Association.

George B. Logan served as president, American Academy of Pediatrics; vice chairman, Medical Interspecialty Committee, American Medical Association; and member, Joint Council, National Pediatric Societies.

Stanley A. Lovestedt served as president, American College of Dentists.

Hugh B. Lynn served as member, Advisory Council on Pediatric Surgery, American College of Surgeons.

Harold Markowitz received a grant from the National Institutes of Health.

Gordon M. Martin received a grant from the Rehabilitation Services Administration.

Maurice J. Martin received a grant from the National Institutes of Health.

Vernon R. Mattox received a grant from the National Institutes of Health.

W. Eugene Mayberry received a grant from the National Institutes of Health.

John G. Mayne served as member, Advisory Committee on Hospital Effectiveness, Department of Health, Education, and Welfare.

Frederic C. McDuffie received grants from the National Institutes of Health and served as vice chairman, Great Plains Regional Research Committee, American Heart Association.

Dwight C. McGoan received a grant from the National Institutes of Health.

John D. Michenfelder received a grant from the National Institutes of Health.

R. Drew Miller served as chairman, Board of Governors, American College of Chest Physicians, and member, Group on Student Affairs, Association of American Medical Colleges.

Clark H. Millikan received grants from the National Institutes of Health and the American Heart Association.

Charles G. Moertel received a grant from the National Institutes of Health and served as chairman, Public Relations Committee, American Society for Clinical Oncology.

Emerson A. Moffitt received a grant from the National Institutes of Health and served as president, Minnesota Society of Anesthesiologists.

George D. Molnar received a grant from the Lilly Research Laboratory.

Donald W. Mulder served as member, Research Committee, World Federation of Neurology.

Sigfrid A. Muller served as president, Dermatological Genetics Club, and visiting professor, Marquette and Emory Universities.

Gerald M. Needham served as chairman, American Board of Medical Microbiology.

Ralph A. Nelson received a grant from the National Institutes of Health.

Ladislav Novak received a grant from the National Institutes of Health.

Haruo Okazaki received a grant from the National Institutes of Health.

Arthur M. Olsen served as president, Tenth International Congress on Diseases of the Chest; president, American Broncho-Esophageal Association; and president, American College of Chest Physicians.

Philip J. Osmundson received a grant from the Northlands Regional Medical Program.

Charles A. Owen, Jr., received a grant from the National Institutes of Health and served as visiting professor, Wayne State University, University of Kentucky, and the Children's Hospital Medical Center (Tehran, Iran), and chairman, Medical Advisory Committee, American National Red Cross.

W. Spencer Payne served as vice president, Minnesota Surgical Society.

Gustavus A. Peters received a grant from the Food and Drug Administration and served as secretary, North Central Allergy Society.

Howard F. Polley served as vice president, Arthritis Foundation, and visiting professor, State University of New York at Buffalo.

Joseph H. Pratt served as president, Society of Pelvic Surgeons.

Raymond V. Randall served as secretary-treasurer, Central Clinical Research Club.

Charles M. Reeve served as president, Dental Research Foundation.

Kai Rehder received a grant from the National Institutes of Health.

Charles J. Restall served as secretary-treasurer, Minnesota Society of Anesthesiologists.

Albert L. Rhoton, Jr., received a grant from the National Institutes of Health.

Bryon L. Riggs, Jr., received a grant from the National Institutes of Health.

Fenwick C. Riley received the Schroeder Ophthalmology Award and was named Heed Foundation Fellow.

Roy E. Ritts, Jr., served as chairman, Science Advisory Committee, Public Health Service, and special consultant, Department of Health, Education, and Welfare.

Joseph G. Rushton served as president, Section on Neurology, Panamer Medical Association.

Robert J. Ryan received grants from the National Institutes of Health, Abbott Laboratories, and the China Medical Board.

W. Mitchell Sams, Jr., received a grant from Lilly Laboratory.

William G. Sauer served as Mayo representative, Regional Advisory Group, Northlands Regional Medical Program.

Alexander Schirger served as president, Association of Minnesota Internists.

Leslie J. Schoenfield served as member, General Medical Section, Division of Research Grants, National Institutes of Health.

Donald A. Scholz served as president, Southern Minnesota Medical Association.

Ann H. Schutt served as member, Governor's Committee (North Dakota) on the Vocational Rehabilitation of Heart Disease, Cancer, and Stroke Patients, and regional medical consultant, North Dakota Division of Vocational Rehabilitation.

John T. Shepherd served as visiting chief, Atlantic City Hospital.

Roy G. Shorter received a grant from the National Institutes of Health.

Robert G. Siekert received grants from the Public Health Service and the National Institutes of Health.

Murray N. Silverstein received a grant from the National Institutes of Health and served as visiting professor, St. Luke's Hospital (Kansas City, Mo.), and visiting lecturer, M.D. Anderson Cancer Institute.

John N. Simons received a grant from the O'Brien Foundation.

Lucian A. Smith received a grant from the National Institutes of Health.

Reginald A. Smith served as secretary-treasurer, Minnesota Obstetrics and Gynecology Society.

Randall G. Sprague received a grant from the National Institutes of Health.

Richard M. Steinhilber received grants from the National Institutes of Health.

Gunnar B. Stickler served as president-elect, Midwest Society for Pediatric Research.

J. Minott Stickney received a grant from the National Institutes of Health.

George K. Stillwell served as president, American Academy of Physical Medicine and Rehabilitation; member, Medical Education Advisory Committee, Rehabilitation Services Administration; assistant secretary-treasurer, American Board of Physical Medicine and Rehabilitation; and Centennial Visiting Professor of Physical Medicine and Rehabilitation, Ohio State University Medical School.

Cameron G. Strong received grants from the National Institutes of Health and the American Heart Association.

William H. Summerskill received grants from the National Institutes of Health and the Sandoz Pharmaceutical Company and served as American Gastroenterological Association Visiting Professor, Dartmouth Medical School, and visiting professor, London Medical School.

Wendell M. Swenson served as visiting professor of gerontology, University of Southern California Graduate School.

Richard E. Symmonds served as visiting professor, Washington Hospital Center, Emory University, and University of Cincinnati.

Howard F. Taswell received a grant from the National Institutes of Health and served as president, Minnesota Association of Blood Banks.

Richard A. Theye received a grant from the National Institutes of Health.

Martin Van Herik served as president, Minnesota State Radiological Society.

L. Emmerson Ward served as president, American Rheumatism Association; chairman, Medical Administration Committee, Arthritis Foundation; and member, National Advisory Committee, Leonard Davis Institute of Health Economics, University of Pennsylvania.

William H. Weidman served as chairman, Committee on Congenital Heart Disease, American Heart Association.

Jack P. Whisnant served as visiting professor of neurology, University of Alabama.

David M. Wilson received a grant from the Kidney Foundation of the Upper Midwest.

John C. Wiltsie served as visiting professor of hematology, Gunderson Clinic (LaCrosse, Wis.).

Richard K. Winkelmann received grants from the National Institutes of Health and served as president, Society for Investigative Dermatology; president, Minnesota Dermatological Society; and member, Training Grants Committee, National Institute of Arthritis and Metabolic Diseases.

Earl H. Wood received grants from the National Institutes of Health, the National Aeronautics and Space Administration, and the U.S. Air Force.

John E. Woods received a grant from the Public Health Service.

Ralph S. Zitnik received a grant from the National Institutes of Health.

Office of International Programs

William E. Wright received the Award for Best Work in History from the Phi Alpha Theta History Honorary Society.

Law School

Carl A. Auerbach served as member, Executive Committee, Division of Behavioral Sciences, National Research Council; public member, Administrative Conference of the United States; and member, National Highway Safety Committee.

Edward H. Cooper served as visiting associate professor of law, University of Michigan.

John J. Cound served as visiting professor, University of California at Los Angeles and University of North Carolina.

Joseph Levstik served as vice president and president, Minnesota Chapter, American Association of Law Libraries.

Robert J. Levy served as member, Task Force, White House Conference on Children, and visiting professor, University of Texas.

Thomas P. Lewis received a research grant from the Ford Foundation and served as vice president, Labor Law Section, Minnesota Bar Association, and visiting professor of law, Orientation Program in American Law, Brown University.

William B. Lockhart served as president, Association of American Law Schools, and chairman, U.S. Commission on Obscenity and Pornography.

Allan H. McCoid was elected to the American Law Institute.

College of Liberal Arts

Administration

Mitchell V. Charnley received the annual national Journalism Teacher of the Year award from Sigma Delta Chi.

Department of Anthropology

E. Adamson Hoebel received the Award of Honor from the Wisdom Society and served as Fulbright visiting professor of law, Katholieke Universiteit (Nijmegen, The Netherlands).

Robert C. Kiste served as member, Executive Committee, and newsletter editor, Association for Social Anthropology in Oceania.

R. F. Spencer served as editor, American Ethnological Society.

Department of Art History

Sidney Simon served as visiting professor, University of California at Santa Cruz.

Michael W. Stoughton received a travel and research grant from the Kress Foundation.

Department of Classics

William D. Coulson served as secretary-treasurer, Minnesota Society, Archaeological Institute of America.

Gerald M. Erickson served as visiting professor, University of Illinois; president, Minnesota Classical Conference; and chairman, Subcommittee on In-Translation Courses, American Philological Association.

A. Thomas Kraabel served as associate field director, Joint Expedition to Khirbet Shemá, American Schools of Oriental Research.

W. Thomas MacCary served as visiting assistant professor of classical studies, University of Michigan at Ann Arbor.

William A. McDonald was listed in *Who's Who in America* and *The Author's and Writer's Who's Who*.

R. Joseph Schork served as team leader, National Humanities Series, National Endowment for the Humanities and Woodrow Wilson National Fellowship Foundation.

Department of East Asian Languages

Richard B. Mather served as member, Nominating Committee, and member, East Asia Regional Committee, American Oriental Society.

Reiko Tsukimura served as visiting lecturer, Harvard University.

Department of Economics

Walter W. Heller received the Distinguished Service Award from the U.S. Treasury Department, honorary LL.D. degrees from Long Island University and the University of Wisconsin, and an honorary L.H.D. degree from Loyola University, and served as vice president, American Economic Association.

E. Scott Maynes served as member, Board of Directors, and chairman, Policy Committee, Consumers Union; member, Board of Directors, and chairman, Member Relations Committee, State Capitol Credit Union; and member, Advisory Committee, Survey Research Center, University of Michigan.

Herbert Mohring received a research grant from the National Science Foundation and was named a fellow of the Royal Economic Society.

Department of English

Harold B. Allen received the Distinguished Service Award from the National Council of Teachers of English and a grant from the National Endowment for the Humanities and served as Distinguished Lecturer, National Council of Teachers of English, and vice president, American Dialect Society.

Chester G. Anderson was elected to the Author's Guild and served as visiting lecturer in English, University of Helsinki, and visiting professor of English, Columbia University.

Kent R. Bales received a stipend from the National Endowment for the Humanities.

Thomas Clayton served as colloquium participant, University of California at Los Angeles, and member, Minnesota State Selection Committee, Rhodes Scholarship Trust.

Charles H. Foster served as president, Alpha of Minnesota Chapter, Phi Beta Kappa; member, Board of Editors, *New England Quarterly*; and member, Executive Council, American Studies Association.

Joseph J. Kwiat served as member, Advisory Committee in American Studies, and member, Selection Committee in American Literature, Committee on International Exchange of Persons.

Toni A. McNaron received a research grant from the National Endowment for the Humanities and served as secretary and chairman, Shakespeare Section, Midwest Modern Language Association.

Robert E. Moore served as visiting professor, Columbia University.

Family Study Center

Gerhard Neubeck served as president, American Association of Marriage Counselors, and was listed in *Who's Who in America*.

Ira L. Reiss received the annual award of the Educational Foundation for Human Sexuality, Montclair State College, and served as president, Midwest Sociological Society.

Department of French and Italian

Arshi Pipa received a research grant from the American Council of Learned Societies.

Department of Geography

Ward J. Barrett received a research grant from the Social Science Research Council.

John F. Hart received a citation for meritorious contributions to the field of geography from the Association of American Geographers; was appointed to the U.S. National Commission for the International Geographical Union; and served as editor, *Proceedings*, editor, *Annals*, and visiting geographical scientist, Association of American Geographers.

Mei-Ling Hsu served as visiting associate professor, National Taiwan University.

Joseph E. Schwartzberg received grants from the U.S. Office of Education and the National Endowment for the Humanities.

Yi-Fu Tuan received a fellowship from the John Simon Guggenheim Foundation.

Department of German

Evelyn S. Firchow served as member, Advising and Nominating Committee, German I Section, Midwest Modern Language Association, and secretary and chairman, German I Section, Modern Language Association.

Gerhard H. Weiss served as seminar participant, Goethe Institute (Munich, Germany); chairman, German Literature I Section, Midwest Modern Language Association; and chairman, Civilization and Culture Committee, American Association of Teachers of German.

Department of History

Josef L. Altholz served as B.K. Smith Lecturer, University of St. Thomas (Houston, Tex.); secretary, Upper Midwest History Conference; and trustee, Research Society for Victorian Periodicals.

Clarke A. Chambers received a research grant from the Russell Sage Foundation and the National Institute of Mental Health.

Harold C. Deutsch received a Fulbright Research Fellowship.

John R. Howe, Jr., received a faculty research fellowship from the Charles Warren Center for Studies in American History, Harvard University.

Rodney C. Loehr served as member, Executive Council, Minnesota Historical Society.

Paul L. Murphy served as member, Nominating Committee, Organization of American Historians.

Thomas S. Noonan received a research grant from the American Philosophical Society and served as participant, Senior Academic Exchange Program between the United States and the Union of Soviet Socialist Republics.

Otto P. Pflanze received a membership in the Princeton Institute for Advanced Study and served as member, Board of Editors, *Journal of Modern History*.

Allan H. Spear received a grant from the National Endowment for the Humanities and served as visiting associate professor of American studies, Carleton College, and visiting associate professor of history, Stanford University.

John A. Thayer served as member, Board of Advisors, Society for Italian Historical Studies.

Rudolph J. Vecoli received grants from the American-Scandinavian Foundation and the American Philosophical Society, was elected a fellow of the American-Scandinavian Foundation, and served as president, American Italian Historical Association; member, Executive Council, Immigration History Group; fellow, American-Scandinavian Foundation; member, Board of Directors, American Immigration and Citizenship Council; and member, Advisory Board, National Project on Ethnic America, American Jewish Committee.

School of Journalism and Mass Communication

Walter H. Brovald received the Elmer G. Voigt Award for Exemplary Service in the Field of Graphic Arts Education from the Education Council of the Graphic Arts Industry, Incorporated.

Roy E. Carter received a research grant from the Social Science Research Council and served as visiting professor of sociology, University of Concepción.

W. Edwin Emery served as editor, *Journalism Quarterly*, and member, Advisory Board, Association for Education in Journalism.

Donald M. Gillmor received a commendation plaque from Kappa Tau Alpha and served as president, Twin Cities Chapter, American Association of University Professors, and vice president, Fair Trial-Free Press Council of Minnesota.

Phillip J. Tichenor served as head-elect, Theory and Methodology Division, Association for Education in Journalism, and chairman, Regional Committee for Research in Agricultural Communications.

Harold W. Wilson received a filmstrip grant from the Printing Products Division of Minnesota Mining and Manufacturing Company and served as treasurer and publications business manager, Association for Education in Journalism, and president, Northwest Industrial Editors Association.

Library School

David K. Berninghausen received the Alumni Achievement Award from the University of Northern Iowa.

Nancy J. Freeman received a Higher Education Act fellowship from the University of Wisconsin.

Wesley C. Simonton served as vice chairman and chairman-elect, Special Interest Group, Classification Research, American Society for Information Science.

Department of Linguistics

Larry G. Hutchinson served as participant, San Diego Syntax and Semantics Conference, University of California at San Diego; discussant, Texas Conference on Goals of Linguistic Theory, University of Texas at Austin; and visiting assistant professor, Linguistics Institute, Ohio State University.

Betty W. Robinett was elected to the Linguistics Association of Great Britain.

Department of Middle Eastern Languages

Caesar E. Farah received a research grant from the American Philosophical Society, was elected to the Royal Asiatic Society of Great Britain, and served as member, Board of Directors, American Association of Teachers of Arabic; president, Minnesota Chapter, Association of Arab-American University Graduates; visiting professor, Istanbul University; and Fulbright Research Scholar in Turkey.

Minnesota Center for the Philosophy of Science

Herbert Feigl received a grant from the Carnegie Corporation; was elected to the Société Internationale pour la Philosophie des Sciences; and served as member, Nominating Committee, Philosophy of Science Association.

Roger H. Stuewer received a research and travel grant from the National Science Foundation.

Department of Music

Frank A. Benciscutto received the Community Music Award from Sigma Alpha Iota; was selected to tour the Soviet Union with the Concert Band Ensemble by the U.S. National Music Committee and the Cultural Deputy of the Soviet Union and to perform for a general session of the Music Educators National Association Convention; was invited to be an honored guest at the Moscow Tchaikovsky Competition by the government of the Soviet Union; was commissioned to write a major work for jazz combo and orchestra by the Minnesota Orchestra; and served as member, Go Committee, and conductor, All Northwest High School Honors Band, Music Educators National Conference; visiting professor of music aesthetics, Bismarck Junior College; featured soloist, Adventures in Music Series, Minnesota Orchestra; music consultant, Minneapolis School District; conductor, All South Junior College Honors Band, Southwest College Band Directors National Association Convention; and conductor, Minnesota All State Band.

Paul W. Freed received a grant from the Minnesota Music Teachers' Association and the Bush Family Foundation and served as president, Minnesota Music Teachers' Association, and vice chairman, Piano Section, Music Teachers' National Association.

Alan L. Kagan served as council member, Society for Ethnomusicology.

Adrian R. Lauritzen was elected to Pi Kappa Lambda.

Charles F. Schwartz served as president, Pi Kappa Lambda.

Eric N. Stokes received grants from the Martha Baird Rockefeller Fund for Music and the Ford Foundation and had two musical compositions premiered by The Netherlands Chamber Orchestra and Amerika Haus of Vienna.

Department of Philosophy

May Brodbeck received a research grant from the National Science Foundation and served as vice president, Western Division, American Philosophical Association.

D. Burnham Terrell served as member, Executive Board, and chairman, Membership Committee, National Collegiate Honors Council.

Department of Political Science

Richard N. Blue received a Fulbright-Hays Fellowship and an award for the best paper, Midwest Political Science Meeting.

Robert T. Holt received a grant from the National Science Foundation.

Samuel Krislov served as editor, *Law and Society Review*, and visiting professor of law and political science, University of Wisconsin.

Theodore R. Marmor received visiting faculty fellowships from the Adlai Stevenson Institute of International Affairs and the Harvard University John F. Kennedy Institute of Politics and served as special consultant to the executive director, President's Commission on Income Maintenance Programs.

Thomas M. Scott received research grants from the National Science Foundation and the Brookings Institution and was listed in *American Men of Science*.

Frank J. Sorauf received a fellowship from the John Simon Guggenheim Foundation and served as member, Council Executive Committee, American Political Science Association.

John E. Turner received an honorary LL.D. degree from Yankton College and a faculty research fellowship from the Social Science Research Council and served as executive director, International Studies Association, and member, Review Panel, National Endowment for the Humanities.

Department of Psychology

Ellen Berscheid received a research grant from the National Institutes of Health and was elected to the Society of Experimental Social Psychology.

Dwight A. Burkhardt received a research grant from the National Eye Institute and served as chairman, Physiological Optics Paper Session, Optical Society of America.

Russell W. Burris received a research grant from the National Science Foundation and served as consultant, Office of Computing Activities, National Science Foundation, and chairman, Learning and Curriculum Research Division, Association for the Development of Instructional Systems.

John G. Darley served as member, Advisory Committee, Office of Scientific Personnel, National Research Council, and committee chairman, American Psychological Association.

René V. Dawis received the distinguished training award from Iota Rho Chi and was listed in *American Men of Science*.

Marvin D. Dunnette received research grants from the Office of Naval Research and the National Science Foundation and a Behavioral Science Award from the General Electric Foundation.

Norman Garnezy received a research grant from the Scottish Rite Foundation for Research in Schizophrenia and served as member, Policy and Planning Board, American Psychological Association; visiting professor of psychology, Cornell University; clinical professor of psychiatry, University of Rochester; colloquia participant, Brown University, University of Pennsylvania, and University of Rochester; and 14th Annual Lasker Lecturer, Michael Reese Institute for Psychosomatic and Psychiatric Research and Training.

Irving I. Gottesman received a training grant from the National Institute of Mental Health, was elected to Sigma Xi and the American Psychopathological Association, and served as member, Executive Council, Behavior Genetics Association; member, Board of Directors, American Eugenics Society; vice president, Minnesota Human Genetics League; and associate editor, *American Journal of Human Genetics*.

James J. Jenkins received grants from the U.S. Office of Education, the Public Health Service, and the National Science Foundation and served as member, Advisory Committee for the Scholastic Aptitude Test, College Entrance Examination Board; chairman, Board of Scientific Affairs, American Psychological Association; and member-at-large, Division of Behavioral Science, and American Psychological Association representative, National Research Council.

James B. Overmier received a research grant from the National Institute of Mental Health and a travel award from the American Psychological Association, was elected to the Society of the Sigma Xi, and served as consulting editor, *Journal of Experimental Psychology*, American Psychological Association.

Milton A. Trapold received a research grant from the National Institute of Mental Health, was elected a fellow of the American Psychological Association and the American Association for the Advancement of Science, and served as member, Experimental Psychology Grant Review Committee, National Institute of Mental Health, and consulting editor, *Journal of Experimental Psychology*, *Psychological Bulletin*, and *Psychonomic Science*.

School of Public Affairs

John E. Brandl served as deputy assistant secretary, U.S. Department of Health, Education, and Welfare; visiting lecturer, University of the Philippines; and member, Board of Directors, Catholic Economic Association.

James E. Jernberg served as visiting assistant professor of political science, University of North Carolina at Chapel Hill.

Arthur Naftalin received an honorary LL.D. degree from the University of North Dakota and the C.C. Ludwig Award for Outstanding Municipal Service from the League of Minnesota Municipalities, was elected to the National Academy of Public Administration, and served as honorary president, U.S. Conference of Mayors; chairman, Faculty Group, Salzburg Seminar in American Studies; and faculty member, Falkenstein Seminar for Social Studies Teachers, Heimvolkshochschule (Falkenstein/Tannus, Germany).

Orville C. Peterson received an Award for Outstanding Public Service from the Minnesota Chapter of the American Society for Public Administration.

Department of Scandinavian

Nils Hasselmo received a Fulbright-Hays Area Center Faculty Fellowship for research in Sweden and Iceland and served as vice president, Society for the Advancement of Scandinavian Studies.

Department of Slavic Languages

Wassilij Alexeev was elected to the American Association for the Advancement of Slavic Studies and served as visiting professor, Russian School, Norwich University.

Walter K. Kondy was elected to the Polish Institute of Arts and Sciences in America.

School of Social Work

Beulah E. Compton received a fellowship from the National Institute of Mental Health and served as visiting faculty member, University of Chicago.

John C. Kidneigh served as visiting professor of social work, University of British Columbia; president, Group Health Association of Minnesota; and vice president, Community Health and Welfare Council of Hennepin County.

Gisela Konopka received a research grant from the Center for Youth Development, Department of Health, Education, and Welfare; a citation from the Volunteers of America; the first distinguished alumnus award from the University of Pittsburgh School of Social Work; and the Outstanding Woman Award from National Campfire Girls; and was elected to the Minneapolis Urban League Board, the National Council on Social Work Education, and the International Commission.

James R. Wiebler served as visiting professor of social work, St. Cloud State College, and member, Board of Directors, Minnesota Conference on Social Work Education.

Department of Sociology

John P. Clark received grants from the National Institute of Mental Health and served as visiting professor, Universities of Illinois and Wisconsin, and council member and program chairman, Criminology Section, American Sociological Association.

Richard H. Hall received a research grant from the National Institute of Mental Health and served as program manager, Science Development Program, National Science Foundation, and council member, Section on Organizations and Occupations, American Sociological Association.

Gregory P. Stone received recognition for the provision of Sanema Indian artifacts to the Brown University Department of Anthropology, was elected to the American Association for the Advancement of Science, and served as visiting professor, Memorial University (St. Johns, Newfoundland), University of Wyoming, and Korcula Summer School (Yugoslavia); member, Board of Directors, Midwest Sociological Society; and member, Central Council, International Committee for the Sociology of Sport.

Richard E. Sykes received a research grant from the National Institute of Mental Health.

Department of South Asian Languages

Paul W. Staneslow served as visiting assistant professor, Michigan State University.

Department of Spanish and Portuguese

Ricardo A. Narvaez served as editor-in-chief, Latin American Lutheran Literature Committee (Mexico City, Mexico).

Department of Speech, Communication, and Theatre Arts

Donald R. Browne received the Outstanding Young Teacher Award from the Central States Speech Association and served as chairman, Mass Communications Division, and member, Board of Directors, International Communications Association.

William S. Howell served as visiting professor, University of Hawaii, and president, Speech Communication Association.

Charles M. Nolte served as artist in residence, Hope College (Holland, Mich.) Robert L. Scott received the James A. Winans Memorial Award for Distinguished Scholarship in Rhetoric and Public Address from the Speech Association of America.

David H. Smith served as vice president for organizational communication, International Communication Association, and visiting associate professor, University of Colorado and California State College at Los Angeles.

Frank M Whiting served as member, Executive Board, University Resident Theatre Association.

Department of Speech Science, Pathology, and Audiology

Joseph B. Chaiklin served as participant, Annual Convention, American Academy of Ophthalmology and Otolaryngology.

Ernest H. Henrikson served as president, American Speech and Hearing Foundation.

Richard R. Martin received a research grant from the Public Health Service.

Richard P. McDermott served as member, Legislative Council, American Speech and Hearing Association.

Charles E. Speaks received a research grant from the National Institute of Neurologic Diseases and Stroke, was elected to the Society of the Sigma Xi, and served as member, Environmental Noise Hazards Group, and chairman, Speech Reception Testing Group, Committee on Hearing, Bioacoustics, and Biomechanics, National Academy of Sciences-National Research Council, and member, Committee on Audiologic Standards, American Speech and Hearing Association.

Clark D. Starr served as visiting lecturer in vocal pathology, Washington University Voice Institute.

Department of Statistics

Robert J. Buehler was elected a fellow of the Institute of Mathematical Statistics.

Somesh DasGupta received a research grant from the National Science Foundation and the U.S. Army.

Department of Studio Arts

Karl E. Bethke received the jury merit award from the Sixth Minnesota Biennial Exhibition, Minneapolis Institute of Arts, and served as president, Minnesota Chapter, Artists Equity Association, Inc.

Allen Downs served as coordinator, Film Workshop, Colorado College.

Raymond Hendler was elected to the New York City Artists Club and exhibited works of art at 118 Art Gallery.

Curtis C. Hoard received awards at the Wisconsin and Minnesota State Fairs and recognition from *Craft Horizon* and *Ceramic Monthly* and served as visiting professor, Penland School of Crafts and University of Albuquerque, and visiting lecturer, Colorado Artist Craftsmen Organization, University of South Dakota, Albuquerque Designer Craftsmen, Moorhead State College, and Charles H. MacNider Museum.

Malcolm H. Myers was elected to Artists Equity, Inc., and served as vice president and president, Midwest College Art Conference, and speaker and exhibitor, Fine Arts Festival, University of Alaska.

Katherine E. Nash received grants from the McMillan Foundation and the Minnesota State Arts Council and served as secretary, Mid-America College Art Association; visiting lecturer, Washburn University; visiting artist, Hobart Technical School; participant, Art in Embassies Program, U.S. State Department; and exhibitor, State of Minnesota.

Wayne E. Potratz lectured and exhibited works of art at Nobles County Art Center and St. Teresa College and exhibited at Lakewood State Junior College.

Herman T. Rowan served as visiting professor, Minnesota Museum Art School.

Herman Somberg served as member, Voting Committee, Artists' Club of New York.

University Libraries

Audrey N. Grosch served as chairman-elect, Documentation Division, and chairman, Consultation Service Committee, Special Libraries Association.

Mary D. Hanley served as president-elect, Minnesota Chapter, Special Libraries Association.

Ralph H. Hopp served as vice chairman and chairman-elect, University Libraries Section, Association of College and Research Libraries.

Janet A. Krieger served as secretary-treasurer, Section of Pharmacy School Librarians, and participant, Teachers' Seminar, American Association of Colleges of Pharmacy.

Beverly A. Lee served as membership chairman, Special Libraries Association.

Karen A. Nelson received the George C. Marshall Fellowship from the Dansk-Amerikansk Fondet (Denmark).

John Parker served as executive secretary, Society for the History of Discoveries.

Valerie L. Roberts was elected to Beta Phi Mu.

Herbert G. Scherer served as chairman, Art Libraries, College and Research Libraries Committee, American Library Association, and panel discussion moderator, Art Librarians Convention, College Art Association.

Henry C. Scholberg served as secretary, Asian and North African Subsection, American College and Research Libraries Section, American Library Association.

Janet E. Snesrud served as first vice president, St. Paul-Minneapolis Alumnae Chapter, Sigma Alpha Iota.

Verners J. Vitins received a research and travel grant from the Hill Family Foundation and served as member, Executive Board, International Association of Agricultural Librarians and Documentalists.

College of Medical Sciences

Department of Anatomy

Dean E. Abrahamson was elected to the Scientists' Institute for Public Information and served as member, Executive Committee, Technical Group on Environmental Studies, American Nuclear Society, and vice chairman of the Board, Scientists' Institute for Public Information.

Robert L. Sorenson received research grants from the National Institutes of Health and the Twin Cities Diabetes Association and served as clinical research consultant in pediatrics, Rigshospitalet (Copenhagen, Denmark).

Department of Anesthesiology

Joseph J. Buckley served as vice president, Academy of Anesthesiology, and visiting professor of anesthesia, McGill University.

James H. Matthews served as alternate director, District 15, American Society of Anesthesiologists; vice president, American Board of Anesthesiologists; visiting lecturer, Hartford Hospital Teaching Center; and visiting professor of anesthesiology, Albert Einstein College of Medicine.

Frederick H. Van Bergen served as visiting professor and A. William Friend Memorial Lecturer, Queen's University, and president, Academy of Anesthesiology.

Department of Biochemistry

James W. Bodley received grants from the American Cancer Society and the National Science Foundation and was elected to the New York Academy of Science.

Ronald D. Edstrom received a research grant from the Public Health Service.

Albert D. Notation served as Ayers-Squibb Travel Fellow of the Endocrine Society, Third International Congress of Endocrinology.

Frank Ungar received a research grant from the National Institute of Arthritis and Metabolic Diseases and a travel award to the Eighth International Congress of Biochemistry (Switzerland) and served as member, Editorial Board, *Biology of Reproduction*, Society for the Study of Reproduction.

Donald B. Wetlaufer received a research grant from the Public Health Service and was elected to the Biophysical Society and the American Institute of Chemists.

Finn Wold received a travel award to the Eighth International Congress of Biochemistry (Switzerland) from the International Union of Biochemistry and a research grant from the Public Health Service.

Department of Dermatology

Francis W. Lynch served as Nelson Paul Anderson Memorial Lecturer, Pacific Dermatologic Association.

Department of Family Practice

Eldon B. Berglund served as director, Family Practice Program, Hennepin County General Hospital; consultant in pediatrics, Okinawa Central Hospital; and secretary-treasurer, Minnesota Academy of Medicine.

Department of History of Medicine

Leonard G. Wilson was appointed library research associate by the Committee on Library of the American Philosophical Society and served as member, History of the Life Sciences Study Section, National Institutes of Health.

University Hospitals

Martin E. Finch received the third prize, Pensacola Art Fair Exhibit of Medical Illustration, and the third prize, Society of Technical Writers and Publishers.

Florence Julian served as board member, National League for Nursing.

Leonard A. Leipus served as president, American Society for Hospital Central Service Personnel.

Department of Laboratory Medicine

Osiat Stutman was elected to the American Society for Experimental Pathology, the American Association of Immunologists, the American Association for Cancer Research, the Central Society for Clinical Research, and the Transplantation Society and served as visiting professor, University of Buenos Aires Medical School, and research associate, American Cancer Society.

Jane L. Swanson received the Ivor Dunsford Memorial Award from the American Association of Blood Banks.

Jorge J. Yunis served as visiting professor, National University (Bogotá, Colombia), Central University (Madrid, Spain), and American University (Beirut, Lebanon).

Department of Medicine

Howard B. Burchell received the Gold Heart Award from the American Heart Association, was invited to chair preliminary sessions at the Seventh International Cardiological Congress (London, England), was elected to the Association of University Cardiologists, and served as visiting professor, University of Rochester and Georgetown University.

Frederick C. Goetz served as program director, General Clinical Research Center, Public Health Service; president, Central Clinical Research Club; and president, Minneapolis Society of Internal Medicine.

Ernest M. Gold was elected to the American Society of Internal Medicine.

Robert P. Gruninger received a research grant from Bristol Laboratories and was elected to the American College of Physicians and the Ramsey County Medical Society.

Harry S. Jacob received research grants from the National Heart Institute and the American Cancer Society, was elected to the Central Society for Clinical Research and the International Society of Hematology, and served as member, Editorial Board, *Journal of Laboratory and Clinical Medicine*, and visiting professor, University of Manitoba Medical School and Mayo Foundation.

Manuel E. Kaplan received a research grant from the National Institute of Arthritis and Metabolic Diseases and was elected to the American Society of Clinical Investigations.

George E. Kitzmiller was elected to the American Board of Internal Medicine.

James R. McArthur received the Distinguished Teacher Award from the Minnesota Medical Foundation.

Murray J. Murray was elected a fellow of the Royal College of Physicians of Edinburgh and served as visiting professor of medicine, Mayo Foundation and Radcliffe Infirmary (Oxford, England), and visiting professor of medicine and external examiner, University of Ibadan (Nigeria).

Alvin L. Schultz received a research grant from the National Institutes of Health and served as associate editor, *Journal of Laboratory and Clinical Medicine*.

Samuel Schwartz received the Research Career Award and research grants from the Public Health Service and was elected to honorary membership in the Kappa Chapter of Phi Zeta.

Fred L. Shapiro received a research grant from the Public Health Service and was elected a diplomate of the American Board of Internal Medicine.

Wesley W. Spink received lecture grants from Eli Lilly and Company and the Bush Foundation and was elected to honorary membership in Phi Zeta.

Naip Tuna received a research grant from the Public Health Service and was elected to the American College of Cardiology and the International Society of Cardiology.

I. Dodd Wilson received research grants from the Public Health Service and the Minnesota Chapter of the Arthritis Foundation; was elected to the Midwest Gut Club, the Central Clinical Research Club, and the Minneapolis Society of Internal Medicine; and served as Daland Fellow, American Philosophical Society.

Department of Microbiology

Russell C. Johnson received research grants from the National Institute of Allergy and Infectious Diseases, was elected to the Society for Experimental Biology and Medicine, and served as secretary-treasurer, North Central Branch, American Society for Microbiology.

Dennis W. Watson received a research grant from the National Institute of Allergy and Infectious Diseases and served as president, American Society for Microbiology.

Department of Neurology

Giovanni F. Ayala was elected to the American Physiological Society and served as visiting scientist, Stazione Zoologica (Napoli, Italy).

Abe B. Baker was elected president of the American Neurological Association.

Terrance D. Capistrant served as active member, American Academy of Neurology, and charter member, American Thermographic Society, and was certified by the American Board of Psychiatry and Neurology.

Robert J. Gurnit served as visiting scientist at Stazione Zoologica (Napoli, Italy) under a travel grant from St. Paul-Ramsey Hospital Medical Education and Research Foundation and served as secretary-treasurer and president-elect, Central Association of Electroencephalographers; member, Cerebrovascular Disease Council, American Heart Association; and vice chief and chief of staff, St. Paul-Ramsey Hospital.

William R. Kennedy served as membership chairman and vice president, American Association of Electromyography and Electrodiagnosis.

Sping Lin received research grants from the National Institute of Neurological Diseases and Stroke and was elected to the American Society for Neurochemistry.

John A. Logothetis served as president, Greek Interprofessional Society of Minnesota.

Emanuel M. Stadlan received a research grant from the Veterans Administration.

Joo H. Sung received a citation from the American Academy of Neurology.

Kenneth F. Swaiman received a training program grant from the U.S. Children's Bureau, was elected to the Central Society for Neurological Research, and served as American Academy of Neurology representative to the National Society for Medical Research and visiting professor, Universities of Florida and Tennessee.

Francis S. Wright was elected a fellow of the American Academy of Neurology and Psychiatry.

Department of Neurosurgery

Lyle A. French received a research grant from the National Institutes of Health, was elected to the Austrian Neurological Society, and served as vice president, American Society of Stereotaxis, and visiting professor of neurosurgery, Louisiana State University, Marquette University, Ohio State University, University of Wisconsin, and University of Michigan.

Donlin M. Long was elected to the American Association of Neurological Surgeons and the Society of the Sigma Xi.

Manfred J. Meier received a Research Career Development Award from the Public Health Service.

School of Nursing

M. Isabel Harris served as treasurer, Zeta Chapter, Sigma Theta Tau.

Department of Obstetrics and Gynecology

Erlio Gurpide received research grants from the Cancer Coordinating Committee, the Population Council, and the Public Health Service.

Department of Ophthalmology

David E. Eifrig received a postdoctoral fellowship from the University of California at Los Angeles, was named to *Outstanding Young Men of America*, and was certified by the American Board of Ophthalmology.

William H. Knobloch served as visiting professor, Mayo Clinic; guest professor and speaker, University of Oregon Medical School; and vice president, Minnesota Academy of Ophthalmology and Otolaryngology.

William B. Rathbun received a research grant from the National Institutes of Health.

Department of Orthopedic Surgery

William J. Kane was elected a fellow of the American Academy of Orthopaedic Surgeons, a founding fellow of the American Orthopaedic Foot Society, and a member of the Association for Academic Surgery and the Minnesota Academy of Medicine.

Department of Otolaryngology

Michael M. Paparella received research grants from the National Institutes of Health, the Deafness Research Foundation, and the American Otological Society; was elected to the American College of Surgeons and the Minnesota Academy of Medicine; and served as council member, Hennepin County Medical Society; council member, Minnesota Academy of Ophthalmology and Otolaryngology; member, Board of Directors, and secretary, Pre-School Survey of Vision and Hearing; and visiting professor, Universities of Texas, Washington, Kansas, and California at Los Angeles.

W. Dixon Ward received a Research Career Development Award from the Public Health Service and served as visiting professor, University of Dusseldorf; visiting lecturer, University of Southampton; chairman, Committee on Noise as a Public Health Hazard, American Speech and Hearing Association; and chairman, Executive Council, Committee on Hearing, Bioacoustics and Biomechanics, National Academy of Science-National Research Council.

Department of Pathology

Franz Halberg served as president, International Society for Study of Biologic Rhythms; director, Integrated Research Program on Chronobiology, International Biologic Program, National Research Council; and visiting professor, Free University of Berlin, Medical Center of the University of Arkansas at Little Rock, and the Universities of Hannover, Munich, Paris, California at Berkeley, and Pennsylvania.

Department of Pediatrics

John A. Anderson served as vice president, American Pediatric Society; vice president and president-elect, American Board of Pediatrics; and visiting professor, University of Hawaii, Women's Medical College, and University of Texas.

David M. Brown received research grants from the Public Health Service and the American Heart Association and was elected to the American Physiological Society, the Central Society for Clinical Research, and Academic Clinical Laboratory Physicians and Scientists.

Adnan S. Dajani received a Career Development Award from the National Institutes of Health and was elected to the Midwest Society for Pediatric Research.

Arthur R. Page received a Career Development Award and a grant from the National Institutes of Health and was elected to the New York Academy of Sciences.

Paul G. Quie received research grants from the National Institutes of Health, was elected to the Society for Experimental Biology and Medicine, and served as Journal of Pediatrics Foundation Visiting Professor, University of Nebraska; visiting professor of pediatrics, University of Colorado; member, Committee for Control of Infections, American Academy of Pediatrics; and member, Committee on Vaccine Development, National Institutes of Health.

Krishna M. Saxena was elected to the American Society of Pediatric Nephrology, the American Medical Association, the Ramsey County Medical Society, the Minneapolis Pediatric Society, and the Northwestern Pediatric Society.

Harvey L. Sharp was elected to the Society for Pediatric Research and the Central Society for Clinical Investigation.

Robert W. tenBensel served as treasurer, Minneapolis Pediatric Society.

Robert A. Ulstrom received a research grant from the National Institutes of Health and served as member, Medical Advisory Board, Group Health, Inc.; member, Board of Trustees, Minnesota Medical Foundation; and visiting professor of pediatrics, Medical College of Georgia.

Homer D. Venters received grants from the Maternal and Child Health Service and the Public Health Service and served as chairman, Chapter Medical Coordinating Committee, and chairman, Local Affiliated Societies Committee, the Arthritis Foundation; member, Community Pediatric Section, American Academy of Pediatrics; and member, Executive Committee, American Rheumatism Association.

L. Robert Vernier received grants from the National Institute of Arthritis and Metabolic Diseases and served as chairman, Research Committee, American Heart Association; member, Advisory Council, American Society of Pediatric Nephrology; visiting professor, Albert Einstein College of Medicine and Cook County Hospital; and president, Kidney Foundation of the Upper Midwest.

Warren J. Warwick served as president, Cystic Fibrosis Club.

Department of Pharmacology

Gilbert J. Mannering received a research grant from the Public Health Service.

Jack W. Miller served as member, Pharmacology-Toxicology Review Committee, and member, Pharmacology-Toxicology Training Committee, National Institutes of Health.

Aloysious J. Quebbemann received research grants from the Merck Company Foundation and the National Institute of Arthritis and Metabolic Diseases and was elected to the Society of the Sigma Xi.

Ben G. Zimmerman received grants from the National Institutes of Health and the Minnesota Heart Association and served as member, High Blood Pressure Council, American Heart Association.

Department of Physical Medicine and Rehabilitation

John D. Allison served as vice president, Minnesota Chapter, American Physical Therapy Association.

Peter F. Briggs received a research grant from Planned Parenthood World Population and was elected to the New York Academy of Science and the Society of the Sigma Xi.

Glenn Gullickson, Jr., was elected a member of the Association of Academic Physiatrists and served as fellow, Council on Cerebrovascular Disease, American Heart Association, and president, American Academy of Physical Medicine and Rehabilitation.

Frederic J. Kottke received a research grant from the Social and Rehabilitation Service and the Award of Merit of Rehabilitation from the Institute of Montreal; was named the John Stanley Coulter Memorial Lecturer by the American Congress of Rehabilitation Medicine; and served as Canadian Association of Physical Medicine and Rehabilitation Visiting Professor, Queens University, McMaster University, and the Universities of Western Ontario, Toronto, Sher-

brooke, Saskatchewan, and Manitoba; Manitoba Centennial Lecturer, Annual Meeting, Canadian Medical Association (Winnipeg, Manitoba); and guest lecturer and seminar participant, 14th Annual Scientific Assembly, College of Family Physicians of Canada (Halifax, Nova Scotia).

William G. Kubicek received research grants from the National Aeronautics and Space Administration, the Unimed Corporation, and the Bush Foundation.

James F. Pohrilla served as president, Minnesota Chapter, American Physical Therapy Association.

Department of Physiology

James R. Bloedel received a research grant from the National Institutes of Health and was elected to the American Physiological Society, the Society of Neuroscience, and the Society of the Sigma Xi.

Irwin J. Fox served as member, Council on Circulation, and member, Council on Basic Sciences, American Heart Association; visiting professor of physiology, University of West Virginia; and participant, Symposium on Clinical Application of Cardiac Catheterization Data, American College of Cardiology and Minnesota Heart Association.

Eugene D. Grim served as chairman, Physiology Study Section, National Institutes of Health.

Jui S. Lee received grants from the National Institute of Arthritis and Metabolic Diseases and the National Institute of Allergy and Infectious Diseases.

Maurice W. Meyer received a research grant from the National Institute of Dental Research, was elected to the American Association for Dental Schools, and served as visiting associate professor, University of California at San Francisco, and secretary, Physiology Section, American Association for Dental Schools.

Richard E. Poppele received a research grant from the National Institute of Neurological Diseases and Stroke and was elected to the New York Academy of Sciences, the American Physiological Society, the Biophysical Society, and the Society for Neuroscience.

Richard L. Purple received a research grant from the National Eye Institute, was elected to the New York Academy of Sciences and the Biophysical Society, and served as secretary-treasurer, Minnesota Chapter, American Association of University Professors; vice president, Southeast Minneapolis Planning and Coordinating Committee; and member, Executive Committee, Prospect Park and East River Road Improvement Association.

Aldo Rescigno served as visiting professor, University of Milan.

Carlo Terzuolo received a research grant from the Public Health Service and served as member, Advisory Board, *Life Sciences* journal, and member, Neurosciences Society.

Department of Psychiatry

Faruk S. Abuzzahab received a Career Developmental Award from the Pharmaceutical Manufacturer Association, was elected a fellow of the American Psychiatric Association, and served as Robert Faucett Memorial Lecturer, Mayo Clinic.

John P. Brantner received the Distinguished Teaching Award from the Minnesota Medical Foundation and the Minnesota Medical Association.

John C. Duffy was elected to the Council of Biology Editors.

David T. Lykken received research grants and a special research fellowship (London, England) from the National Institute of Mental Health.

Burtrum C. Schiele received a research grant from the National Institute of Mental Health, was elected a life fellow of the American Psychiatric Association, and served as general chairman, Drug Efficacy Study Group, National Institute of Mental Health and American Colleges of Neuropsychopharmacology.

William Schofield served as secretary-treasurer, Division of Clinical Psychology, American Psychological Association.

Travis I. Thompson was named to *American Men of Science*, was elected a fellow of the American Psychological Association and the American Association for the Advancement of Science, and served as program chairman, Psychopharmacology Division, American Psychological Association, and director, Psychopharmacology Training Program, National Institute of Mental Health.

School of Public Health

Joseph T. Anderson received a research grant from the National Institutes of Health.

Donald E. Barber received a training grant from the Public Health Service, was listed in *Who's Who in American Education*, and served as president, North Central Chapter, and invited chairman, Environment Section, Annual Meeting, Health Physics Society; trustee, Board of Trustees, Findlay College (Findlay, Ohio); delegate, International Radiation Protection Association (Brighton, England); and invited speaker, Annual Meeting, American Industrial Hygiene Association.

Jacob E. Bearman served as chairman, Biometrics Section, American Statistical Association, and visiting professor, Tel-Aviv University.

Henry Blackburn was elected to the American Epidemiological Society and served as vice chairman, Council on Epidemiology, American Heart Association; member, Executive Committee, Council on Epidemiology, International Society of Cardiology; and visiting professor, University of Geneva.

Knowlton J. Caplan received a research grant from the Department of Health, Education, and Welfare and a Leadership Recognition Plaque from the Industrial Ventilation Conference (Michigan State University).

Velvl W. Greene received a travel grant (United Kingdom) from the American Sterilizer Company and served as diplomate, American Intersociety Academy for Certification of Sanitarians, and visiting biologist (Augustana College, North Dakota State University, and Hope College), Office of Biological Education, American Institute of Biological Sciences.

Marcus O. Kjelsberg served as secretary, Twin Cities Chapter, American Statistical Association.

Richard B. McHugh received a training grant from the National Center for Health Services Research and Development and served as council member, American Statistical Association.

George S. Michaelsen received the Distinguished Alumnus Award from Augsburg College.

Theodore A. Olson served as president and member, Board of Directors, International Association for Great Lakes Research.

Harold J. Paulus received the 1968 award from the Michigan Industrial Hygiene Society.

Irving J. Pflug was elected to the American Society of Heating, Refrigerating, and Air-Conditioning Engineers and served as member, General Committee on Foods, and chairman, Fruit and Vegetables Committee, National Research Council; chairman, Program Committee, American Society of Heating, Refrigerating, and Air-Conditioning Engineers; and member, U.S. Pharmacopoeia Advisory Panel on Biological Indicators.

Leonard M. Schuman received research grants from the National Cancer Institute, was elected to the American Association for the Advancement of Science, and served as member, Governing Council, American Public Health Association; member, National Advisory Environmental Control Council, Public Health Service; and member, Advisory Committee on Health Protection and Disease Prevention, Secretary of Health, Education, and Welfare.

Elaine C. Sime served as member, Board of Directors, Minnesota Public Health Association.

Lee D. Stauffer served as director, School Board, St. Anthony Village School District; chairman, Education Committee, Northlands Regional Medical Program; founder diplomate, Intersociety Board for the Certification of Sanitarians; and visiting lecturer in public health, University of North Carolina.

Ruth E. Stief served as member, Public Health Review Committee, National Institutes of Health.

Vernon E. Weckwerth received grants from the Maternal and Child Health Division of Health Services and Mental Health Administration and from the Hospital Research and Educational Trust of the American Hospital Association and served as visiting lecturer, Ohio State University, Johns Hopkins Hospital, University of California at Berkeley, and visiting lecturer-consultant, Columbia School of Public Health.

Department of Radiology

Kurt Amplatz received a grant from the Public Health Service, was elected to the Rocky Mountain Medical Association, and served as visiting professor, Mayo Clinic.

John H. Beam served as vice president, Radiologists' Business Managers Association.

Merle K. Loken received recognition from the Japanese Society of Nuclear Medicine, was elected a fellow of the American College of Radiology, and served as trustee, Central Chapter, Society of Nuclear Medicine.

Harold O. Peterson received a plaque from the Rocky Mountain Radiological Society, was listed in *Who's Who in America*, was elected to the American Association of Neurological Surgeons, and served as president, Minnesota Academy of Medicine; president, American Society of Neuroradiology; and member, Neurology Study Section, National Institutes of Health.

Shih H. Tsai received research grants from the Picks Foundation and was elected to the Society of Nuclear Medicine.

Department of Surgery

Henry Buchwald received the Cine Clinics Award from the American College of Surgeons and research grants from the National Institutes of Health and the Minnesota Heart Association; was elected a fellow of the American College of Cardiology, the Minneapolis Surgical Association, the Minnesota Surgical Association, and the Society of the Sigma Xi; and served as a delegate, Atherosclerosis Council, American Heart Association.

Aldo R. Castaneda received a grant from the National Institutes of Health and the Public Health Service, was named honorary member of the Sociedad Medica de Occidente (Guatemala) and the Sociedad Medica de Costa Rica and honorary consul of the Republic of Guatemala, and served as member, Advisory Council on Cardiovascular Surgery, American Heart Association, and professor of cardiovascular surgery, University of Chicago.

John P. Delaney received research grants from the Public Health Service, the Council for Tobacco Research, and the John A. Hartford Foundation, Inc., and was elected to the American Gastroenterologic Association, the Central Surgical Association, and the Society of University Surgeons.

M. Michael Eisenberg received an award from the National Institute of Arthritis and Metabolic Diseases and was elected to the Midwest Gut Club, the Minneapolis Surgical Society, the American Gastroenterological Society, the Halsted Society, the Minnesota Surgical Society, the Association for Academic Surgery, and the International Society for Surgery of the Alimentary Tract.

Theodor B. Grage received a grant from the National Institutes of Health, was elected a fellow of the American College of Surgeons and to the Society of Academic Surgeons and the Society for Surgery of the Alimentary Tract, and served as chairman, Scientific Design Committee, Central Oncology Group, and visiting professor, Mayo Clinic.

Colin A. Markland was elected to the American Urological Association and the American Academy of Pediatrics and served as chairman, National Urology Forum, and visiting professor in Australia and Cincinnati, Ohio.

John S. Najarian received grants from the National Institutes of Health; was elected to the Surgical Biology Club, the Society of Surgical Chairmen, the American Surgical Association, the American Association for the Advancement of Science, the American Society of Nephrology, the American Association for Laboratory Animals, the Hennepin County Medical Society, the Surgical Biology Club, the Minnesota Academy of Medicine, the Society of Clinical Surgery, the Minnesota Surgical Society, the Central Surgical Association, the Society of the Sigma Xi, and the International Society of Surgery; and served as president, Association for Academic Surgery; program chairman, Society for University Surgeons; member, Scientific Advisory Board, consultant, Upper Midwest Chapter, and member, Legislative Liaison Committee, National Kidney Foundation; member, Advisory Committee on Hemodialysis and Renal Transplantation, Department of Public Welfare, Minnesota State Medical Association; council member, Mid-winter Conference of Immunologists; member, Board of Trustees, Minnesota Medical Foundation; member, Committee Regarding Ethical Problems, Inter-

national Transplantation Society; William C. Beaumont Memorial Lecturer and Sommer Memorial Lecturer (Portland, Ore.); ninth Carl W. Eberbach Surgical Visiting Professor, Marquette School of Medicine; visiting professor of surgery, Johns Hopkins University, Ohio State University, University of California at Los Angeles, Massachusetts General Hospital, Rochester School of Medicine (Rochester, N.Y.), and Harvard Medical School; and member, Editorial Boards, *Journal of Surgical Research*, *Minnesota Medicine*, *Journal of Surgical Oncology*, *American Journal of Surgery*, *YearBook of Surgery*; and associate editor, *Surgery*.

Richard L. Simmons was elected to the Reticuloendothelial Society, the Society of University Surgeons, the American Society of Nephrology, the American Association of Immunologists, the Minnesota State Medical Association, and the American Medical Association, and served as academic scholar in medicine, John and Mary R. Markle Foundation, and visiting professor of surgery, University of Chile Medical School.

Henry Sosin received a research grant from the National Institutes of Health and was elected to the American College of Surgeons, the American Gastroenterologic Society, the Society for Alimentary Tract Surgeons, and the Society of the Sigma Xi.

Richard L. Varco served as vice chairman, American Board of Surgery; vice president, Minnesota Medical Foundation; president, Minnesota Academy of Medicine; and visiting professor, Downstate Medical Center and University of Washington Medical School.

Department of Therapeutic Radiology

Seymour H. Levitt was elected a fellow of the American College of Radiology and served as visiting professor, Mount Sinai School of Medicine, Walter Reed Army Hospital, University of Rochester Medical School, and University of Texas Medical Branch.

Yosh Maruyama received grants from the American Cancer Society, the National Cancer Institute, the James Picker Foundation, and the National Academy of Science-National Research Council, and served as visiting professor, Universities of Chicago, Illinois, Iowa, Wisconsin, California at Irvine and Los Angeles, and Texas, Boston University, and Henry Ford Hospital.

College of Pharmacy

Frank E. DiGangi served as vice president and president, Minnesota State Pharmaceutical Association, and member, General Committee of Revision, United States Pharmacopoeial Convention.

William J. Hodapp served as chairman, Section of Teachers of Continuing Education, American Association of Colleges of Pharmacy.

Hugh F. Kabat received the Hallie Bruce Memorial Lecture Award from the Minnesota Society of Hospital Pharmacists and the Mead Johnson Award for Research in Professional Practice from the American Society of Hospital Pharmacists and served as vice president, Minnesota Epilepsy League, and visiting lecturer, Universities of South Dakota, Kansas, Arkansas, Mississippi, and Pittsburgh, St. Louis College of Pharmacy, and Ferris State College.

Philip S. Portoghese received research grants from the National Institutes of Health and was elected to the American Society for Pharmacology and Experimental Therapeutics.

Edward G. Rippie was elected a fellow of the American Institute of Chemists.

Taito O. Soine received research and training grants from the National Institutes of Health and served as member, United States Pharmacopoeial Revision Committee; external doctoral examiner, University of Alberta; visiting lecturer, Universities of Michigan and Connecticut and Mount Senario College; and member, Medicinal Chemistry Study Section, National Institutes of Health.

E. John Staba served as vice president, American Society of Pharmacognosy; vice president, Plant Section, Tissue Culture Association; chairman, Biological Teachers Section, American Association of Colleges of Pharmacy; National Science Foundation exchange scientist (Poland); and Fulbright-Hays scientist (Germany).

Lawrence C. Weaver served as member, Executive Committee, American Association of Colleges of Pharmacy; chairman, Advisory Council for Comprehensive Health Planning, Minnesota State Planning Agency; and member, Editorial Board, *Journal of Toxicology and Applied Pharmacology*.

Institute of Technology

Department of Aerospace Engineering and Mechanics

Roger L. Fosdick received a research grant from the National Science Foundation and served as member, Selection Committee, Society for Natural Philosophy, and member, Editorial Advisory Board, *Journal of Elasticity*.

Helmut G. Heinrich received research grants from the U.S. Air Force, the U.S. Naval Air Development Center, and the Sandia Corporation; was elected a fellow of the American Institute of Aeronautics and Astronautics and the Royal Aeronautical Society of Great Britain; and served as member, Technical Committee on Aerodynamic Deceleration, American Institute of Aeronautics and Astronautics.

Daniel D. Joseph received a fellowship from the Guggenheim Foundation and served as member, Program Committee, Society for Natural Philosophy, and visiting professor, Imperial College (London, England).

Robert Plunkett served as vice president, American Society of Mechanical Engineers.

Patarasp R. Sethna received a grant from the Office of Scientific Research of the U.S. Air Force and served as visiting scholar, University of California at Berkeley; lecturer, Fifth International Congress on Nonlinear Oscillations, Institute of Mathematics (Kiev, U.S.S.R.); and guest lecturer, University of Kyoto.

School of Architecture and Landscape Architecture

Roger B. Martin received the 1968 and 1969 Bradford Williams Awards from and was elected to the American Society of Landscape Architects and served as chairman, Program Committee, National Conference of Instructors of Landscape Architecture; chairman, Research Committee, American Society of Landscape Architects; and member, Committee on Urban Environment of Minneapolis.

Ralph E. Rapson received a grant from the National Endowment for the Arts and Humanities, Honor Awards from the Four-Minnesota Society of Architects, and recognition from the Architects Advisory Board of the University of Kansas and the School of Architecture and Urban Design (Lawrence, Kan.); was elected an honorary life member of the Boston Architectural Center; and served as member, Board of Directors, Minnesota Society of Architects, and visiting professor and lecturer, Universities of Kansas, Nebraska, Texas, Florida, California, Utah, Manitoba, Virginia, Southern Illinois, and Toronto, Wartburg College, and Ohio State and Auburn Universities.

George C. Winterowd served as regional director, Association of Collegiate Schools of Architecture.

School of Chemistry

Neal R. Amundson received the Vincent Bendix Award from the American Society of Engineering Education and was elected to the National Academy of Engineering.

Rutherford Aris received a research grant from the American Chemical Society, the E. Harris Harbison Award for Distinguished Teaching from the Danforth Foundation, and the Alpha Chi Sigma Award for Research in Chemical Engineering from the American Institute of Chemical Engineers, and served as W.N. Lacey Lecturer, California Institute of Technology, and Peter C. Reilly Lecturer, Notre Dame University.

Ronald E. Barnett received a Faculty Development Award from the Merck Company Foundation.

Richard F. Borch was elected a fellow of and received a research grant from the Alfred P. Sloan Foundation.

Robert C. Brasted received a Fulbright Lecturer Award (Stuttgart, Germany) and served as chairman, Educational Policy Committee, Council Committee on Education, American Chemical Society; chairman, Board of Publications, *Journal*

of *Chemical Education*; and visiting professor of chemistry, National Taiwan University.

Robert W. Carr received research grants from the Atomic Energy Commission and the Petroleum Research Fund and served as assistant editor, *Journal of Physical Chemistry*, American Chemical Society.

Lawrence E. Conroy received a research fellowship from Argonne National Laboratory and served as member, Editorial Board, *Journal of Solid State Chemistry*.

Raymond M. Dodson received a research grant from the National Institutes of Health, was listed in *Who's Who in America*, and was invited to join Wisdom Hall of Fame.

Robert M. Hexter received a research grant from the National Science Foundation and served as member, Executive Committee, Division of Physical Chemistry, American Chemical Society.

Thomas E. Hutchinson received a research grant from the Atomic Energy Commission and served as chairman, Minnesota Section, chairman, Midwest Section, and member, Board of Directors, Thin Films Division, American Vacuum Society; chairman, Gordon Conference on Thin Films; and chairman, Minnesota Chapter, Electron Microscope Society of America.

Kenneth H. Keller served as visiting professor of biomedical engineering, Johns Hopkins University, and visiting scholar, Columbia University.

Maurice M. Kreevoy served as visiting professor, Rudjer Boskovic Institute and University of Zagreb (Yugoslavia), and participant, Exchange Program, National Academy of Sciences and Council of Academies of the Socialist Federative Republic of Yugoslavia.

Edward Leete received a research grant from the National Institutes of Health, exhibited a painting at the Sixth Minneapolis Institute of Arts Biennial, and served as Foster Lecturer, University of New York at Buffalo.

Victor G. Mossotti served as invited lecturer, Institute for Inorganic Chemistry and University of Kosice (Czechoslovakia), Slovak Academy of Sciences.

Wayland E. Noland received grants from the U.S. Army Medical Research and Development Command and the Public Health Service; was listed in *Who's Who in America*, *Leaders in American Science*, and *World Who's Who in Science*; and served as first vice president and president, Alpha of Minnesota Chapter, Phi Beta Kappa; chairman-elect and chairman, Minnesota Section, American Chemical Society; and secretary, Board of Editors, and secretary, Board of Directors, Organic Syntheses, Incorporated.

Louis H. Pignolet received a postdoctoral fellowship from the National Institutes of Health.

William E. Ranz received the Distinguished Alumnus Award from the University of Cincinnati.

Donald G. Truhlar served as invited speaker, Gordon Research Conference on the Chemistry and Physics of Isotopes (Issaquah, Wash.).

Department of Civil and Mineral Engineering

C. Edward Bowers received research grants from the National Science Foundation and the Office of Water Resources Research, was listed in *Who's Who in America*, and was elected to the Society of the Sigma Xi.

Howard I. Epstein was elected to the Society of the Sigma Xi.

Charles Fairhurst received a research grant from the U.S. government and the Best Research Paper Award from the Inter-Society Committee on Rock Mechanics and served as member, U.S. National Committee on Rock Mechanics, National Academy of Sciences, and chairman, Committee on Rock Mechanics, American Institute of Mining, Metallurgical, and Petroleum Engineers.

Jesse E. Fant received the Outstanding Land Surveyor Award from the Minnesota Land Surveyors Association.

Lawrence E. Goodman was elected a fellow of the American Society of Civil Engineers.

John T. Hanley received the Distinguished Service Award from the Minnesota Society of Professional Engineers and served as vice president and president-elect, Minnesota Society of Professional Engineers.

John W. Hayden received a fellowship from the National Aeronautics and Space Administration.

James E. Lawver received a research grant from the American Iron and Steel Institute, was elected to the Institution of Mining and Metallurgy (London, England), and served as chairman, Electrostatic and Magnetic Separation Section, Ninth International Mineral Processing Congress (Prague, Czechoslovakia).

Walter J. Maier received the Radebaugh Award from the Central State Water Pollution Control Federation and a research grant from the Federal Water Pollution Control Administration.

Lyle P. Pederson served as president, Minnesota Geotechnical Society.

Eugene P. Pfeider served as chairman, Rapid Excavation Committee, National Academy of Sciences; ex officio member-at-large, National Research Council; and vice president, Society of Mining Engineers, American Institute of Mining, Metallurgical, and Petroleum Engineers.

Edward Silberman received a research grant from the Federal Water Quality Administration, was elected to the American Academy of Mechanics, and served as president, American Water Resources Association.

Charles C. Song received the Distinctive Service Award from the Chinese-American Association of Minnesota and research grants from the Office of Naval Research and the Water Resources Research Center, was elected to the American Water Resources Association and the International Association for Hydraulic Research, and served as member, Panel H-8, American Society of Naval Architecture and Marine Engineering, and member, Reviewing Committee, Applied Mechanics Review, American Society of Mechanical Engineers.

Heinz G. Stefan received a research grant from the Federal Water Quality Agency and was elected to the Society of the Sigma Xi.

Donald H. Yardley served as president, Minnesota Chapter, American Institute of Professional Geologists, and director, Twin Cities Chapter, American Institute of Mining Engineers.

Department of Computer, Information, and Control Sciences

Krzysztof S. Frankowski received a research grant from the National Science Foundation and served as visiting professor, Weizmann Institute of Science (Israel).

Jay A. Leavitt received a research grant from the National Science Foundation and served as visiting professor, University of Pisa.

Marvin L. Stein received a research grant from Control Data Corporation and served as visiting professor, Hebrew University of Jerusalem.

School of Earth Sciences

Harold M. Mooney received a Fulbright Award (New Zealand), was listed in *Who's Who in America*, and served as visiting professor of geophysics, Victoria University (Wellington, New Zealand).

Glenn B. Morey was elected a fellow of the Geological Society of America.

George Rapp, Jr., served as president, National Association of Geology Teachers, and chairman, Council of Education and the Geological Sciences, National Science Foundation.

Robert F. Roy received a grant from the National Science Foundation.

Joseph Shapiro received a grant from the National Science Foundation.

Paul K. Sims was listed in *Who's Who in America* and *Engineers of Distinction*, Engineers Joint Council.

William C. Walton received a research grant from the Office of Water Resources Research and served as chairman, Hydrogeology Honor Award Committee, Hydrogeologic Division, Geological Society of America.

Department of Electrical Engineering

Vernon D. Albertson received a research grant from the Edison Electric Institute and served as chairman, Twin Cities Chapter, Power Group, and chairman, 1970 Midwest Power Symposium, Institute of Electrical and Electronics Engineers.

William F. Brown, Jr., served as vice chairman and chairman, Minnesota Chapter, American Society for Information Science, and member, Editorial Board, *Transactions on Magnetics*, and member, Special Panel, Magnetics Group, American Institute of Electrical and Electronics Engineers.

Robert J. Collins was elected a fellow of the Institute of Electronic and Electrical Engineers.

Stephen J. Kahne served as chairman, Technical Committee on Education, American Automatic Control Council; vice chairman, Education Committee, International Federation of Automatic Control; associate editor, *Transactions on Automatic Control*, Institute of Electrical and Electronics Engineers; and visiting lecturer, Technical University of Berlin.

Robert F. Lambert received research grants from the National Science Foundation and the National Advisory Space Agency and was elected a fellow of the Institute of Electronic and Electrical Engineers.

E. Bruce Lee served as visiting fellow, Science Research Council and University of Warwick (Coventry, England).

Hendrik J. Oskam received grants from the National Science Foundation and the Air Force Cambridge Research Laboratories, was elected a fellow of the American Physical Society, and served as member, Executive Committee, Gaseous Electronics Conference.

John H. Park, Jr., served as visiting associate professor, University of Hawaii.

William T. Peria served as secretary-treasurer, Surface Science Division, American Vacuum Society.

G. K. Wehner received a research grant from the National Science Foundation and was elected a senior member of the American Vacuum Society.

School of Mathematics

Alfred Aeppli received a grant from the National Science Foundation and served as chairman, North Central Section, Mathematical Association of America.

Robert H. Cameron received a research grant from the National Science Foundation and served as invited lecturer, Summer Institute in Mathematics for High School Students, National Science Foundation.

John A. Eagon received a research grant from the National Science Foundation.

Eugene B. Fabes received a grant from the National Science Foundation and served as visiting professor of analysis, Università di Ferrara (Italy).

Leon W. Green received a grant from the National Science Foundation and served as exchange professor, University of Paris, and senior visiting fellow, Science Research Council (Warwick, England).

Melvin Hochster received a grant from the National Science Foundation.

Robert G. Jeroslow received a research grant from the National Science Foundation and served as visiting assistant professor of urban and public affairs, Carnegie-Mellon University.

Donald W. Kahn received a grant from the National Science Foundation.

Harvey B. Keynes received grants from the National Science Foundation and served as visiting fellow, University of Warwick (Coventry, England).

Howard A. Levine received a postdoctoral fellowship from the Swiss Federal Technical University and was elected to the American Mathematical Society.

Albert Marden served as member, Institute for Advanced Study (Princeton, N.J.).

Daniel Pedoe received the Lester R. Ford Award from the Mathematical Association of America.

Marian B. Pour-El served as visiting professor, University of Bristol, and visiting lecturer, Universities of Paris, Amsterdam, Manchester, Leicester, Leeds, and Bristol, Oxford University, Eidgenössische Technische Hochschule Zürich, and Mathematisches Forschungsinstitut.

Peter A. Rejto served as visiting associate professor, University of Geneva.

Wayne H. Richter received a research grant from the National Science Foundation.

George R. Sell served as visiting scholar, University of California at Berkeley and University of Washington.

James B. Serrin received a research grant from the U.S. Air Force Office of Scientific Research and served as council member, American Mathematical Society; president, Society for Natural Philosophy; and visiting professor, University of Sussex.

Yasutaka Sibuya served as visiting professor, University of California at

Los Angeles, and invited participant, Conference on the Analytical Theory of Ordinary Differential Equations, Western Michigan University.

Hugh L. Turrittin received a grant from the National Science Foundation and served as invited lecturer, Conference on the Analytical Theory of Ordinary Differential Equations, Western Michigan University.

Department of Mechanical Engineering

John E. Anderson was elected to the Society of the Sigma Xi and served as chairman, Twin Cities Section, American Institute of Aeronautics and Astronautics; visiting professor, Byelorussian University (Minsk, U.S.S.R.); and exchange scientist to the Soviet Union, National Academy of Sciences.

Ernst R. Eckert received an honorary doctor of science degree from the University of Manchester (Manchester, England), was elected to the National Academy of Engineering and a fellow of the American Society of Aeronautics and Astronautics and the American Society of Mechanical Engineers, and served as assembly member, International Heat Transfer Conference, and visiting professor, Purdue University.

Edward A. Fletcher received a Fulbright travel grant, was listed in *Who's Who in America*, and served as visiting professor of chemistry, University of Poitiers (France); secretary and member, Board of Advisors, Central States Section, Combustion Institute; and member, Papers Committee, and member, Advisory Committee, Thirteenth International Combustion Symposium.

Richard C. Jordan served as vice president, Scientific Council, Institut International du Froid; trustee, Great Lakes Foundation; and member, Editorial Advisory Board, Institute for Scientific Information.

Benjamin Y. Liu received a Guggenheim Fellowship from the John Simon Guggenheim Memorial Foundation and served as visiting professor, University of Paris.

Gayle W. McElrath received the E.L. Grant Award from the American Society for Quality Control, was elected to the Engineers Joint Council, was listed in *Who's Who in America* and *American Men of Science*, and served as director, Council for the International Progress of Management, and visiting lecturer, State University of Iowa, Purdue University, University of Wisconsin, and Massachusetts Institute of Technology.

Emil Pfender received research grants from the National Science Foundation and the Public Health Service and the Adams Memorial Membership Award from the American Welding Society, Incorporated.

Ephraim M. Sparrow was listed in *Who's Who in America* and served as visiting professor, Technion-Israel Institute of Technology.

Dale F. Stein received research grants from the Atomic Energy Commission, the Army Research Office, and the National Science Foundation and served as member, Board of Review, *Metallurgical Transactions*, and member, Physical Metallurgy Committee, American Institute of Mining, Metallurgical, and Petroleum Engineers.

Kenneth T. Whitby was listed in *Who's Who in America*.

Office of Ore Estimation

George F. Weaton was elected to the Colorado Mining Association and served as chairman, Council of Section Delegates Executive Committee, American Institute of Mining, Metallurgical, and Petroleum Engineers, and visiting professor of mine taxation, University of Missouri at Rolla, University of Arizona, Mackay School of Mines, and University of Nevada.

School of Physics and Astronomy

Benjamin F. Bayman served as visiting professor, University of Arizona.

Ernest Coleman was elected to the Deutsche Physikalische Gesellschaft and the European Physical Society.

Stephen G. Gasiorowicz served as visiting professor at Deutsches Elektronen Synchrotron (Hamburg, Germany).

J. Woods Halley received a visiting scientist grant from the Organization of American States and a research grant from the Research Corporation, was elected to the New York Academy of Sciences, and served as visiting scientist, University of Chile.

Morton Hamermesh served as editor, *Journal of Mathematical Physics*.
Norton M. Hintz served as member, Board of Directors, Walker Art Center, and member, Board of Directors, Minneapolis Center Opera Company.

Russell K. Hobbie received first prize in the Biennial Film Competition of the American Association of Physics Teachers.

Alfred O. Nier received a research grant from the National Aeronautics and Space Administration and served as leader, Team Planning Experiments for 1975 Mars Landing, National Aeronautics and Space Administration.

Lewis H. Nosanow was elected a fellow of the American Physical Society.

Cecil J. Waddington served as secretary-treasurer, Cosmic Physics Division, American Physical Society.

John R. Winckler received research grants from the National Science Foundation and the National Aeronautics and Space Administration, was elected to the International Astronomical Union, and served as member, Study Commission on the Earth Environment, National Academy of Sciences, and member, Advisory Committee on High Energy Astrophysical Observatory, National Aeronautics and Space Administration.

William Zimmermann, Jr., received a Fulbright travel and research grant.

University College

Thomas H. Walz served as president, Southern Minnesota Chapter, National Association of Social Workers; program chairman, Minnesota Welfare Association; and visiting professor, University of Georgia.

Center for Urban and Regional Affairs

John R. Borchert served as president, Association of American Geographers, and chairman, Earth Sciences Division, National Research Council.

College of Veterinary Medicine

Department of Veterinary Anatomy

Caroline M. Czarnecki received a research grant from the Minnesota Turkey Growers Association and was elected to the American Association of Veterinary Anatomy.

Department of Veterinary Diagnostic Laboratories

John M. Higbee served as secretary-treasurer, Twin City Veterinary Medical Society.

Department of Veterinary Hospitals

Donald G. Low served as president, American Association of Veterinary Clinicians.

Department of Veterinary Medicine

Richard E. Shope, Jr., received a research grant from the National Institutes of Health and served as immunologist, Pan American Health Bureau, United Nations.

Dale K. Sorensen received a research grant from the U.S. Atomic Energy Commission.

Department of Veterinary Microbiology and Public Health

James A. Libby received the Certificate of Merit Award from the Consumer and Marketing Service of the U.S. Department of Agriculture and served as president, Teachers of Food Hygiene at the Colleges of Veterinary Medicine, and chairman, Public Health Committee, Minnesota Veterinary Medical Association.

Keith I. Loken received a research grant from the Public Health Service and was elected to the Society of the Sigma Xi.

Benjamin S. Pomeroy was named Minnesota Veterinarian of the Year by the Minnesota Veterinary Medical Association and served as secretary-treasurer,

Minnesota Veterinary Medical Association, and president, Minnesota Chapter, Gamma Sigma Delta.

Department of Veterinary Obstetrics and Gynecology

Melvin L. Fahning received the Distinguished Service Award from the Roseville Jaycees, was named one of the Ten Outstanding Young Men of Minnesota by the Minnesota Jaycees, and served as publicity chairman, and member, Education Committee, Society for the Study of Reproduction.

Richard H. Schultz served as member, Education Committee, Society for the Study of Reproduction, and visiting professor, University of Oslo.

Department of Veterinary Pathology and Parasitology

John C. Schlotthauer served as president, Kappa Chapter, Phi Zeta.

Department of Veterinary Physiology and Pharmacology

Gary E. Duke was elected to the American Physiological Society.

Harold E. Dziuk served as president, Kappa Chapter, Phi Zeta.

Grace W. Gray received a research grant from the U.S. Air Force Office of Scientific Research, was elected to Iota Sigma Pi, and served as participant, M.H. SeEVERS Testimonial Symposium, University of Michigan Medical Center.

Paul B. Hammond received a research grant from the National Institutes of Health and served as member, Committee on the Biological Effects of Atmospheric Pollutants, and chairman, Lead Panel, National Research Council, and member, Task Force on Research Planning in Environmental Health Sciences, and member, Program Committee, National Institute of Environmental Health Sciences.

Department of Veterinary Surgery and Radiology

John P. Arnold served as president, Minnesota Veterinary Medical Association.

Griselda F. Hanlon received a certificate of appreciation as visiting lecturer to the Harrison County Veterinary Association (Texas), was elected a diplomate of the American College of Veterinary Radiology, and served as vice president and president-elect, American Veterinary Radiology Society, and secretary, Educators in Veterinary Radiologic Science.

DIVISIONS OF COORDINATE CAMPUSES AND EDUCATIONAL RELATIONSHIPS

University of Minnesota, Duluth

Administration

Raymond W. Darland received a travel grant (Hawaii, the Philippines, India, Thailand, Nepal, and Finland) from the Midwest Universities Consortium for International Activities and served as president, Twin Ports Navy League.

Robert L. Heller served as National Science Foundation and U.S. representative, United States-Japan Cooperative Science Program Meeting (Stony Brook, N.Y.), and National Science Foundation and Earth Science Curriculum Project representative, Congress on the Integration of Science Teaching (Varna, Bulgaria).

Division of Education and Psychology

Marilyn L. Brophy was elected to Delta Kappa Gamma.

Ajit K. Das was elected to the American Psychological Association.

Pacy Friedman received a study-institute fellowship from the Central Institute for the Deaf (St. Louis, Mo.) and served as visiting lecturer, University of Wisconsin at Eau Claire and Superior.

Kamal S. Gindy served as president, Northern Minnesota Psychological Association, and vice president, Society of the Sigma Xi.

Moy F. Gum received grants from the U.S. Office of Education and was listed in *Who's Who in America*.

Robert V. Krejcie served as consultant, Wisconsin Vocational System Teacher Evaluation, and was listed in *Leaders in Education*.

John H. Ness served as member, Executive Committee, Speech Association of Minnesota.

Ruth H. Richards served as vice president, Kappa Chapter, Delta Kappa Gamma.

Lewis J. Rickert received an award from the Central District of the American Association of Health, Physical Education, and Recreation.

Stella B. Schulz served as secretary, Minnesota Home Economics Teacher Educators.

Vernon L. Simula served as president, Minnesota Reading Association.

Harry E. Watts was elected to Phi Delta Kappa and served as vice president, Duluth-Superior Craftsmen's Club.

Ward M. Wells received the Lou Keller Award from the Minnesota Health and Physical Education Association.

Educational Research and Development Council of Northeast Minnesota

Richard A. Laliberte served as visiting faculty member, Wisconsin State University at Superior.

Division of Humanities

Ann C. Anderson received a grant from the Juilliard School of Music and served as associate concertmaster, Duluth Symphony.

Thomas D. Bacig served as executive secretary, Minnesota Council of Teachers of English.

William G. Boyce served as vice president, Midwest Museums Conference, American Association of Museums.

James H. Brutger served as council member, Art Educators of Minnesota, and board member, Chisholm Museum.

Henry J. Ehlers served as visiting professor, University of Washington at Seattle, and was listed in *Who's Who in America* and the *International Who's Who*.

William R. Ermey was elected to the National Association of Teachers of Singing.

Robert H. Evans served as vice president, Minnesota Philosophical Society.

Wendell Glick received grants from the Center for Editions of American Authors and served as sponsor, International Thoreau Fellowship.

Rudolph I. Schauer received the first-prize award for painting from Kreiman's Gallery Annual Juried Exhibition.

Fred E. Schroeder received a fellowship from the National Endowment for Humanities and served as team leader, National Humanities Series, National Fellowship Foundation.

vanBenschoten Scranton exhibited works of art at Newcomers 1968, Lytton Center of the Visual Arts; Ventura County Forum of the Arts; Cerritos Open '68 and '69; 50th Anniversary Exhibition, Otis Art Institute; Santa Barbara Small Image Show; National Orange Show; Annual Los Angeles All-City Art Exhibit; Long Beach Third Annual Open Drawing Show; and All-California Show, Laguna Beach Art Galleries.

E. Ruth van Appledorn served as invited sustaining patron and fellow, American Society for Psychical Research, Inc.

Harriet E. Viksna served as instructor, Foreign Language Workshop, College of St. Benedict, and treasurer, Minnesota Chapter, American Association of Teachers of German.

Division of Science and Mathematics

Sylvan Burgstahler received a grant from the National Science Foundation.

Thomas J. Bydalek received a research grant from the National Science Foundation.

Ronald Caple received a research grant from the American Chemical Society.

Robert M. Carlson served as chairman, Lake Superior Section, American Chemical Society.

Donald M. Davidson, Jr., served as president, University of Minnesota, Duluth, Chapter, Society of the Sigma Xi.

Conrad E. Firling received a fellowship from Southern Illinois University and was elected to the Southern Illinois Chapter, Society of the Sigma Xi.

John C. Green received a research grant from the National Science Foundation.

Howard G. Hanson received a research contract from the Office of Naval Research and served as Minnesota-area regional representative, American Association of Physics Teachers Council.

Stephen C. Hedman received a research grant from the National Institutes of Health.

Pershing B. Hofslund received the Thomas Sadler Roberts Award from the Minnesota Ornithologists' Union and served as first vice president, Wilson Ornithological Society.

Vincent R. Magnuson received research grants from the Research Corporation of America and the American Chemical Society.

Ralph W. Marsden served as member, Executive Committee, Minnesota-Wisconsin Section, American Institute of Professional Geologists.

Charles L. Matsch was named National Science Foundation Science Teacher Fellow and Van Hise Fellow in Geology, University of Wisconsin at Madison.

Paul H. Monson served as participant, Summer Institute in Systematics, Smithsonian Institution and American Society of Plant Taxonomists.

James C. Nichol served as councillor, Lake Superior Section, American Chemical Society.

Wilmar L. Salo received a research grant from the National Institutes of Health.

Larry C. Thompson served as visiting professor, Instituto de Química, University of São Paulo, and president and secretary-treasurer, University of Minnesota, Duluth, Chapter, Society of the Sigma Xi.

Division of Social Sciences

Romine R. Deming was cited for excellent work as criminology consultant, Region B Crime Council, Arrowhead Regional Development Commission, and received a grant for a Correctional Institutions Video Project from the Higher Education Coordinating Commission.

J. Clark Laundergan served as chairman, Minnesota Sociological Foundation.

Frances E. Skinner served as president, Minnesota Conference on Social Work Education.

Dwaine R. Tallent was elected to the Academy of Management.

University of Minnesota, Morris

Administration

Herbert G. Croom served as secretary, Upper Midwest Association of Collegiate Registrars and Admissions Officers, and member, Committee on Agriculture and Conservation, and governor, Minnesota-Dakotas District, Kiwanis International.

Division of Education

Ethel L. Curtis received grants from the U.S. Office of Education and served as president, Minnesota Association for Childhood Education.

Dean E. Hinman received a research grant from the U.S. Office of Education and served as vice president, Minnesota Teacher Education Council.

Bruce D. Rolloff was listed in *Who's Who in American Education* and *Community Leaders of America* and served as chairman, Division of Men's Physical Education and Athletics, Central District Association for Health, Physical Education, and Recreation, and chairman, District 13, National Association of Intercollegiate Athletics.

Division of Humanities

Laird H. Barber served as vice president, Minnesota Conference, American Association of University Professors.

Raymond J. Lammers served as president, Speech Association of Minnesota, and guest director, Theatre L'Homme Dieu.

Division of Science and Mathematics

Jay Y. Roshal was elected to the American Society for Microbiology and served as an honorary research associate, Harvard University.

William J. Stone received a research grant from and was elected to the Society of the Sigma Xi.

Thomas E. Straw was elected to the Society of the Sigma Xi.

James B. Togeas received a fellowship from the National Science Foundation.

Division of Social Sciences

Orval T. Driggs, Jr., was listed in *Outstanding Educators of America*.

Ernest D. Kemble received a fellowship from the National Institute of Mental Health and served as member, Division of Physiological and Comparative Psychology, American Psychological Association.

Eric Klinger received research grants from the National Science Foundation and the U.S. Office of Education.

Arthur R. Landever received the Founder's Day Award from New York University and served as member, Executive Committee, Minnesota Political Science Association.

Jooinn Lee received a fellowship from the Society for Religion in Higher Education.

William O. Peterfi served as chairman, Political Science Section, Minnesota Academy of Science.

University of Minnesota Technical College, Crookston*Administration*

Dennis L. Hegle served as member, State Advisory Council, and chairman, High School Relations Committee, Minnesota Association of Financial Aid Administrators.

Agriculture Division

Erman O. Ueland received a grant from the Junior College Institute, Moorhead State College.

Business Division

Adolph E. Beich received a grant from Moorhead State College, was elected to Alpha Nu Chapter of Delta Pi Epsilon, and served as newsletter coeditor, Minnesota Business Education Association.

Betty L. Brecto was elected to the Chi Chapter of Delta Kappa Gamma, was listed in the *Dictionary of International Biography* and *Creative and Successful Personalities of the World*, and served as president, Minnesota Business Education Association.

Hotel, Restaurant, and Institutional Management Division

Ralph W. Nestor, Jr., served as visiting lecturer in business, Moorhead State College.

General Education Division

Doris V. Flom was elected to the Chi Chapter of Delta Kappa Gamma.

Joe P. Mazzitelli served as member, Board of Directors, Red River Valley Historical Society.

David A. Stoppel was elected a fellow of the American Association for the Advancement of Science.

Clifford D. Strom was elected to Phi Delta Kappa.

DIVISIONS OF FINANCE, PLANNING, AND OPERATIONS**Office of the Advisory Architect**

Winston A. Close was elected a fellow of the American Institute of Architects.

Office of the Field Auditor

Don Fahey served as admissions chairman, Association of College and University Auditors.

DIVISIONS OF STUDENT AFFAIRS**Office of Admissions and Records**

Theodore E. Kellogg served as vice president, Professional Activities, American Association of Collegiate Registrars and Admissions Officers.

University Health Service

Pauline S. Berry served as member, Board of Directors, American Association of Marriage and Family Counselors.

Donald W. Cowan received a research grant from the Public Health Service and served as secretary-treasurer, American College Health Association, and member, Steering Committee, Task Force on Program Development and Administration, Fifth National Conference on Health in College Communities.

Department of the Minnesota Union

Edwin O. Siggelkow served as president, Association of College Unions International.

Gordon L. Starr served as participant, First European Festival of Recreation (Geneva, Switzerland); member, Board of Directors, and director of research, National Industrial Recreation Association; and executive secretary, Minnesota Recreation and Park Association.

Office of the Foreign Student Adviser

Josef A. Mestenhauer served as chairman, Council on Advisers to Foreign Students and Scholars, member, Research and Evaluation Committee, consultant, and participant, National Conference (Kansas City, Mo.), National Association for Foreign Student Affairs; consultant, Minnesota Orientation Center, Institute of International Education; and member, Board of Directors, and member, Executive Committee, Minnesota International Center for Students and Visitors.

Forrest G. Moore was elected to Phi Delta Kappa and Chi Psi and served as consultant, Foreign Student Programs (Universities of Boston and Pittsburgh and New York International Center), and participant, Annual Convention, National Association for Foreign Student Affairs; consultant, Minnesota Orientation Center, Institute of International Education; director, Minnesota Orientation Center; consultant, International Educational Exchange Programs, Department of State; coordinator, Andrews Fund Committee; and participant, Annual Convention, American Personnel and Guidance Association.

John W. Northrop served as member, Committee on Insurance, National Association of Foreign Student Affairs.

Student Activities Bureau

Ludwig J. Spolyar served as president, Minnesota College Personnel Association.

Student Counseling Bureau

Patricia S. Faunce was named the Outstanding Young Woman of Minnesota by the Outstanding Young Women of America Organization and served as membership chairman and secretary, Minnesota Personnel and Guidance Association; treasurer, Minnesota College Personnel Association; secretary and treasurer, Minnesota Chapter, Phi Beta Kappa; and education chairman and member, Board of Directors, Stagehands' League, Guthrie Theatre Foundation.

Vivian H. Hewer was named to *Who's Who of American Women and Leaders in Education* and served as member, Commission on Institutions of Higher Education, and member, Commission on Research and Service, North

Central Association, and national consultant, Commission on the Occupational Status of Women, National Vocational Guidance Association.

Edwin G. Joselyn served as president, Minnesota Personnel and Guidance Association; consultant, University of Illinois; and member, Independent School District No. 281 School Board (Robbinsdale, Minn.).

Student Life Studies

Ralph F. Berdie served as president, American Personnel and Guidance Association; seminar participant, United Nations Educational, Scientific, and Cultural Organization (Europe); and editor, *Journal of Counseling Psychology*, American Psychological Association.

THE WORK OF THE UNIVERSITY

Office of the President

Malcolm Moos, *President*

During the biennium, the activities of the Office of the President were heavily focused upon organizational and personnel changes aimed at solving problems created by the increasing complexity of the University. Upon the resignation in July 1969 of Elmer W. Learn, director of planning and executive assistant to the President, the planning function was reassigned to Hale Champion, new vice president for planning and operations. Eileen McAvoy, administrative assistant to the President, was assigned other responsibilities of the position related to the functions of the President's Office.

At the same time, Laurence R. Lunden, vice president for business administration, was moved to the position of vice president and consultant to the President. His responsibilities include carrying out specific tasks assigned by the President, general supervision of patent activity and negotiations, and strengthening of development work in the patent area. He also works in the gift-giving area as an adviser on estate planning and philanthropy.

The functions of the secretary to the Board of Regents, formerly in the Office of the Vice President for Business Administration, were placed more directly in the President's Office with the appointment of James F. Hogg as secretary in May 1969. The investment function, also formerly part of business administration, was incorporated into a new office headed by Roger Kennedy, vice president for investments and executive director of the University of Minnesota Foundation. Upon Vice President Kennedy's resignation in July 1970, the investment management function was added to Vice President Champion's responsibilities, and his title was changed to vice president for finance, planning, and operations. The position of executive director of the Foundation and director of development was assumed by Robert J. Odegard, who reports to the President.

The President initiated a number of major University actions during the biennium. First, a blue ribbon commission, chaired by Chancellor Alexander Heard of Vanderbilt University, was appointed to study the administrative functions and mission of the health sciences. The commission's recommendations included creation of a new vice-presidential position for the health sciences. Second, an all-University committee was asked to review the ROTC programs. Their recommendations supported continuation of ROTC programs at the University and suggested a number of steps to strengthen ROTC offerings. Third, an administrative committee, chaired by Associate Vice President Stanley Kegler, was appointed to develop a University position on higher education in the state of Minnesota. Among recommendations in the report was a study of need for a University campus at Rochester. Fourth, a considerable expansion and development of the University's commitment to low-income students was undertaken. Special efforts to recruit low-income minority students as well as creation of an innovative tutorial program were part of this program.

OFFICE OF THE DIRECTOR OF DEVELOPMENT

Robert J. Odegard, *Director*

In June 1970 Robert J. Odegard was appointed director of development for the University and executive director of the University of Minnesota Foundation. As director of development he began establishment of a central office to coordinate development activities previously dispersed through the various units of the University. By the end of the biennium, a new development com-

mittee had been formed and the coordinating council for internal screening of research proposals had been replaced by the development council. It had been generally felt that the coordinating council was too large and cumbersome to perform the screening function effectively. The new council consists of the full-time fund raisers at the University plus the President and the vice presidents.

As executive director of the Foundation, Mr. Odegard succeeded Roger Kennedy, who had also served as vice president for investments since that position was established in September 1969. When Vice President Kennedy accepted the position of vice president for finance with the Ford Foundation, he proposed Mr. Odegard as successor to his Foundation responsibilities. Supervision of University investment activities was transferred to Vice President Hale Champion.

PATENTS

G. Willard Fornell, *Patent Adviser*

ASSIGNMENT OF PATENT APPLICATIONS, 1968-1969

Assignment of Application for Patent, Serial No. 743,006, Marvin B. Bacaner, Method of Treating Cardiac Arrhythmias.

Assignment of Application for Australian Patent, Serial No. 41906/68, Ahmad A. Nakib, Toroidal Heart Valve.

Assignment of Application for Canadian Patent, Serial No. 027,176, Ahmad A. Nakib, Toroidal Heart Valve.

Assignment of Application for Patent, Serial No. 760,870, John G. Haygreen, Simultaneous Drying and Densification of Wood.

Assignment of Application for British Patent, Serial No. 44677/68, Ahmad A. Nakib, Toroidal Heart Valve.

Assignment of Application for Patent, Serial No. 673,120, William E. Bradley, Implantable Bladder Stimulating Apparatus and Method.

Assignment of Application for German Patent, Serial No. P 18 02 232.7, Ahmad A. Nakib, Toroidal Heart Valve.

Assignment of Application for Patent, Serial No. 782,064, Adrian C. Dorenfeld, et al., Tin Ore Treating Process.

Assignment of Application for Patent, Serial No. 788,758, Aldert van der Ziel, et al., Improvement in the Tetrod FET Noise Figure by Neutralization and Tuning.

Assignment of Application for Patent, Serial No. 707,960, Alejandro Moebus, et al., Sun Screen Composition.

Assignment of Application for Patent, Serial No. 816,952, Frank D. Dorman, et al., Blood Pump.

Assignment of Application for Bolivian Patent, Serial No. 68/69, Adrian C. Dorenfeld, et al., Tin Ore Treating Process.

Assignment of Application for Patent, Serial No. 827,414, Richard G. Chenoweth, Ophthalmic Device with O-Ring Speculum.

Assignment of Application for Canadian Patent, Serial No. 052,690, Robert L. Kaster, Pivoting Disc Heart Valve.

Assignment of Application for Australian Patent, Serial No. 56,266/69, Robert L. Kaster, Pivoting Disc Heart Valve.

PATENTS RECEIVED, 1968-1969

Original United States Patent No. 3,396,849, Arnold Landé, Membrane Oxygenator-Dialyzer.

Original Australian Patent No. 282,068, S. R. B. Cooke, et al., Ore Treating Process.

Original United States Patent No. 3,413,545, Kenneth T. Whitby, Particle Counter System.

Original Canadian Patent No. 799,231, Anatolio B. Cruz, Jr., et al., Prosthetic Heart Valve.

Original United States Patent No. 3,430,763, Iwao Iwasaki, Method of Removing Fatty Acid Coating from Iron Ores.

Original United States Patent No. 3,438,394, Ahmad A. Nakib, Toroidal Heart Valve.

Original United States Patent No. 3,441,649, Marvin B. Bacaner, Method for Suppressing Ventricular Fibrillation.

Original Chilean Patent No. 23,394, S. R. B. Cooke, et al., Ore Treating Process.

ASSIGNMENT OF PATENT APPLICATIONS, 1969-1970

Assignment of Application for Patent, Serial No. 839,297, Robert A. Ersek, Implantable Prosthetic Pass-Through Device.

Assignment of Application for Patent, Serial No. 841,756, Gerald W. Timm, et al., Implantable Electronic Stimulator.

Assignment of Application for Patent, Serial No. 845,507, John G. Haygreen, Reduction of Springback in Particleboard by Resin Treatment of Green Particles.

Assignment of Application for British Patent, Serial No. 50686/69, Robert L. Kaster, Pivoting Disc Heart Valve.

Assignment of Application for Patent, Serial No. 23,388, Perry L. Blackshear, Jr., et al., Cardiac Replacement Device.

Assignment of Application for Patent, Serial No. 35,815, Robert A. Ersek, Prosthesis Fixation Device.

Assignment of Application for Patent, Serial No. 38,356, Perry J. Blackshear, et al., Implantable Infusion Pump.

Assignment of Application for Patent, Serial No. 855,735, Maurice M. Kreevoy, et al., Method of Reducing Ketones.

Assignment of Application for Patent, Serial No. 855,736, Maurice M. Kreevoy, et al., Method for Preparing Amines.

PATENTS RECEIVED, 1969-1970

Original United States Patent No. 3,476,143, Robert L. Kaster, Pivoting Disc Heart Valve.

Original Bolivian Patent No. 2,986, Adrian C. Dorenfeld, et al., Tin Ore Treating Process.

Original Italian Patent No. 856,508, Walter J. Runge, Light Shield Producing Material & Method.

Original United States Patent No. 3,494,853, W. T. Peria, et al., Vacuum Deposition Apparatus Including a Programmed Mask Means Having a Closed Feedback Control.

Original United States Patent No. 3,495,013, Marvin B. Bacaner, Method of Treating Cardiac Arrhythmias.

Original United States Patent No. 3,502,271, Ronald M. Hays, Iron Ore Treating Process.

Original United States Patent No. 3,510,402, William E. Marshall, Non-discriminating Proteinase and the Production Thereof.

Divisions of Administration

Donald K. Smith, *Vice President*

The Office of the Vice President for Administration was established by President Moos and the Board of Regents in April 1968. Donald K. Smith, who was then associate vice president for academic administration, was appointed vice president for administration.

The Office was given primary responsibility for representing the President in coordination of the work of the various divisions of central administration and in relations with the faculty-student Senate Consultative Committee, other Senate committees, and the Senate. In addition, the Office represents the President in administration of the Office of the University Attorney, the University Police Department, and the University Press.

A major responsibility given the vice president for administration was development of University information systems, especially as these provide information for budget planning and resource allocation decisions, educational and physical planning decisions, and policy formation. To this end, the Bureau of Institu-

tional Research was moved to the Office, and a new Division of Analytical Studies was established in the Graduate School Research Center, reporting through that Center to the vice president for administration. With the assistance of staff in Analytical Studies, the administrative computer center, the Office of Admissions and Records, and the Business Office, detailed development of the major information files maintained by the University was undertaken. Goals are to establish a complete and well-integrated data base for decision-making and to make maximum use of the administrative computer in storing, processing, and analyzing such data. At the same time, development of systems of analysis was undertaken for such areas as instructional costs, faculty effort, student curriculum preferences, space utilization, and attrition rates.

BUREAU OF INSTITUTIONAL RESEARCH

John E. Stecklein, *Director*

During the first two thirds of the biennium, Ralph F. Berdie, director of Student Life Studies and professor of psychology, served as acting director of the Bureau while its director, John E. Stecklein, was on assignment as chief of party for the University of Minnesota-University of Concepción Cooperative Project in Concepción, Chile. Effective July 1, 1969, the Bureau was transferred from the Office of the Vice President for Academic Administration to the newly created Office of the Vice President for Administration. The location of the Bureau was also changed, for the second time in two years, in December 1968, resulting in considerable turmoil and staff stress.

General Educational Research Unit—Staff members in this unit completed a number of research studies during the biennium. Four analyses of the new P-N grading system for the University Senate, a study of faculty work load for the College of Education, an analysis of the degrees of satisfaction expressed toward the University by graduating seniors, and an analysis of registration difficulties of College of Liberal Arts students in fall quarter 1968 comprised the list of short-term studies. A long-term study that originated nearly eight years ago, focusing on the academic progress and patterns of study of students who participated in intercollegiate athletics, was completed in early 1970. A report comparing the results of this study with those of a previous study of a group of athletes competing under different eligibility requirements was also published.

The ongoing program of student evaluation of instruction was greatly expanded with the increased concern of faculty and students about the quality of the educational program. A major innovation was an attempt to improve communication between students and faculty and to reduce the amount of time required to process the Student-Teacher Rating Forms, enabling the instructor to make changes in a course while it was in progress. New techniques included administration of a background form to students at the beginning of a class and a mid-quarter rating form at that point, in addition to the more typical end-of-quarter form. In addition, student evaluation committees established in ten experimental classes met periodically with the instructors to provide improved feedback. During 1969-1970, approximately 20,000 Student-Teacher Rating Forms were administered in the major colleges of the University. Plans are under way to initiate a series of experimental approaches to the problem of student evaluation of instruction, concentrating on faster feedback of student attitudes to the instructor and faster implementation of this information by the instructor in modifying his course, if he deems it desirable.

Bureau personnel also worked with representatives from the Medical School in evaluating Phase A of the new medical curriculum inaugurated in fall 1969. This evaluation involved development of a comprehensive questionnaire for students, peer evaluations, and student evaluations of instruction.

Administrative Research Unit—In addition to the routine data collection handled by the unit, several studies were undertaken at the request of central administration. The salary comparison study, which compares University faculty salaries with those of other Big Ten institutions and several comparable universities, was computerized during the biennium. High, low, median, and mean salaries by professorial rank, college, and department were computed and compared, in

both computer-printed tables and hand-drawn graphs. A fact book for Regents and a departmental data summary were also completed.

Planning, questionnaire development, data collection, and analysis for a faculty activities study, the first of its kind in 20 years, were a major responsibility of this unit during 1969-1970. Work was in progress at the end of the biennium on tabulation of findings from the faculty activities study, plus other brief summary reports designed for distribution to groups concerned with the University's operation. A separate study and analysis of part-time University staff was also in progress as the biennium closed. A special subproject was a comparison of faculty activity data for male and female members of the staff.

Routine activities included collection and submission of data for HEGIS (Higher Education General Information Survey) and NCABID (North Central Association Basic Institutional Data) studies, Class Size Distribution Survey, Trend Analysis of Students Enrolled at the University of Minnesota, Departmental and Collegiate Data on FTE Staff and Students, and Full-Time Instructional Faculty Information. Administrative personnel also answered a number of questionnaires requesting information about the University.

Other Activities—All books and other materials in the Bureau Library were cataloged and classified, using modern library procedures. A study to determine the history, policies, and practices involved in giving recognition for nonclassroom experiences in various divisions of the University was well under way, but not completed, because of serious illness of the principal investigator. Space was made available for a staff person who was assigned responsibility for keeping records of the Martin Luther King Program.

The Faculty Information System, which had been in operation for five years, was discontinued early in the biennium at the suggestion of central administration. A committee was set up to study the problem of gathering faculty information and keeping faculty records. Since the discontinuance, special efforts have been made to update information concerning new faculty appointments and promotions in order to provide a central core of basic faculty characteristics data for BIR reference. These data are maintained on punch cards for ready access when special studies are requested.

The second in a proposed series of four Institutional Research Workshops was held in Minneapolis at the beginning of the biennium. Planned and coordinated by the director of the Bureau, the workshop was funded by the U.S. Office of Education and was one component of a network of workshops proposed for the entire country.

Several staff members carried instructional responsibilities in the College of Education during the biennium.

Problems and Plans for the Future—The Bureau has made great strides in adapting to operation some distance from the center of the campus, largely because of the effective shuttle service that has been developed along University Avenue. It is hoped that with increased frequency of shuttle buses, the service will be even more efficient. It is clear, however, that an essentially service-oriented office, serving faculty, administration, and students, cannot operate as efficiently or effectively a mile and a half from the center of campus as it could if it were on campus. It is hoped that arrangements will be made in the near future to move the Bureau to a more central location, making its services more accessible to those who wish to use them.

The student clamor for relevant courses, improved instruction, more flexibility, less accountability, and innovation has brought about an increased awareness and concern of the faculty regarding the nature of the curriculum and the instructional process. As a result, requests have increased for Bureau assistance in such areas as curriculum and course evaluation. It is anticipated that this demand will continue to increase, and that many of the Bureau's efforts in the coming biennium will be focused on the instructional program. Because the nature of the curriculum, the instructional techniques used, and the processes for measuring achievement are interrelated, it is anticipated that subsequent work in the area of curriculum evaluation will attempt to tie together all three elements. Curriculum evaluation, which has been difficult in the past, will be even more difficult in the future as standard measures are discontinued, more flexibility is introduced, and a less standardized objective is established. Studies will require specially

trained personnel and more emphasis on an understanding of behavioral change and its motivation than in the past.

POLICE DEPARTMENT

C. B. Hanscom, *Director*

Offense Reports—During the 1968-1970 biennium, 8,826 offenses were reported to this Department, an increase of 2.3 percent over the number reported in the last biennium. Of the reported offenses, 60.3 percent of the cases were successfully closed. The total value of property stolen was \$291,323.15, a substantial increase over the previous biennium. The value of property recovered was \$42,375.12.

Polygraph Examinations—The Department continued its program of conducting polygraph examinations for other law enforcement agencies. Because of continued increase in work load, the number of examinations was again limited; 194 subjects were examined for 65 different agencies during the biennium.

Services—In addition to normal police functions, the Department continued, among other things, to transport to the Business Office all monies received by University departments, to operate the University Lost and Found Department, to supervise and control use of all University building keys, to provide fingerprinting and notarial services to the public, to provide speakers to a variety of organizations, to maintain records of and periodically change safe combinations for all University departments, and to transport sick and injured students and staff for medical aid. The Department answered 1,105 personal emergency calls during the biennium.

Parking—The Department continued responsibility for operation and maintenance of University parking facilities. As of June 30, 1970, there were 14,124 parking spaces, including 9,073 transient spaces and 5,051 contract spaces. This is an increase of 179 spaces over the number available in the last biennium. Parking was provided for 7,320,000 cars during the biennium, an increase of 141,743 over the figure for the last biennium. During the biennium 458 students were employed in operation of the parking facilities, for a total student payroll of \$631,684.66.

UNIVERSITY OF MINNESOTA PRESS

John Ervin, Jr., *Director*

The 1968-1970 biennium was marked by a number of significant developments in the operations and planning of the University Press. Two new steps were taken to stimulate the submission of outstanding work for publication by the Press. The McKnight Awards Program, under which several substantial cash prizes are offered annually to the authors of distinguished works published by the Press in the preceding year, was established in 1969. It is financed through a grant from the McKnight Foundation of St. Paul. At present, a \$1,000 first prize and two \$750 second prizes are offered annually. Manuscript submissions and initiation of publishing projects also were stepped up through addition of a staff position of search editor, with major responsibilities in the area of manuscript solicitation and evaluation.

Several noteworthy publishing projects were planned during the biennium. A series of translations of the memoirs of Soviet military leaders of World War II, under the general editorship of Harrison E. Salisbury, was projected for publication in eight volumes. Plans were drawn up for a multi-volume series on the ecology and environment of the Upper Midwest for general readers and college and high school students. A volume of essays on the history of the Twin Cities was planned under the editorship of Professor Clarke A. Chambers. A volume by Robert Penn Warren, *John Greenleaf Whittier's Poetry: An Appraisal and A Selection*, was acquired for publication early in 1971. Plans were carried forward for a book on economic and social planning by Andreas Papandreu, exiled Greek cabinet minister and former University of Minnesota professor of economics. Publication of a series of lectures by distinguished specialists in comparative medicine was planned by Regents' Professor Wesley W. Spink, M.D.

Among the publications of the Press during the biennium were the award-winning books in the first annual McKnight Awards competition, in which all 1969 publications were considered. *The Harding Era: Warren G. Harding and His Administration*, by Robert K. Murray, won first prize. *The Why of Music: Dialogues in an Unexplored Region of Appreciation*, by Donald N. Ferguson, and *Grain Storage: The Role of Fungi in Quality Loss*, by Clyde M. Christensen and Henry H. Kaufmann, won second prizes.

The most pressing problems of the Press, particularly during the second half of the biennium, were financial. The sales income of the Press was adversely affected by the general downturn of the economy in this period. The reduction of federal grants to college and university libraries also had a dampening effect on sales income through the resultant decrease in the book-buying budgets of many libraries. At the same time, the Press experienced increased costs in line with the over-all inflationary rise during this period. Although list prices of the Press books and other publications were increased as a result of rising costs, the price increases could not entirely keep pace with the rate of cost increase, since that would, in some cases, mean pricing books beyond the reach of their intended markets.

The sales income of the Press in the 1968-1970 biennium was \$823,880.36, an increase over the \$758,463.29 total for the 1966-1968 biennium. In the 1968-1970 biennium, 73 titles were published, including 47 clothbound books, 10 paperbound books, and 26 pamphlets. Figures for the previous biennium were 46 clothbound books, 21 paperbound books, and 9 pamphlets, for a total of 76 titles.

Divisions of Academic Administration

William G. Shepherd, *Vice President*

The Office of the Vice President for Academic Administration is responsible for the development and establishment of academic policies and structures in the University. It administers academic personnel policies and allocates academic resources for staff, supplies, and expenses to the colleges, to intercollegiate and interdisciplinary all-University academic programs, and to units supporting the academic activities of the University.

During the 1968-1970 biennium, Assistant Vice President James Hogg left the Office of Academic Administration to assume the position of secretary to the Board of Regents, and Assistant Vice President Lloyd H. Lofquist, formerly associate dean in the College of Liberal Arts, was appointed to fill his position. Assistant Vice President Fred E. Lukermann was granted a leave of absence, and Assistant Vice President Eugene Eidenberg was appointed to carry on his work with community programs and University academic activities in support of them. Neil McCracken joined the staff as budget assistant with staff responsibilities. Anne Wirt continued in her position as executive assistant to the vice president and Ann Bailly as administrative assistant.

The Office of International Programs, with responsibility for all University activities of an international nature, was made a part of the Office of the Vice President for Academic Administration effective July 1, 1970. Professor William E. Wright was appointed associate to the vice president, academic administration, for international programs.

Plans for reorganization of the health sciences in the University call for a chief administrative officer at the vice-presidential level. Upon approval of the plans by the Board of Regents, responsibility for the Medical School, the Schools of Nursing and Public Health, the College of Pharmacy, and the University Hospitals will shift from the vice president for academic administration to the new vice president for health sciences.

DEPARTMENT OF AEROSPACE STUDIES

Frederick J. Adelman, *Head*

Enrollment/Commissioning Totals—Air Force ROTC enrollment and commissioning totals as of May 31, 1969, and May 31, 1970, are shown in the table below. The apparent disparity between AS 400 totals and officer production (com-

missioning totals) is attributable to a number of factors. Students who complete their academic work and are commissioned at the end of fall or winter quarter are included in the fiscal year commissioning totals. Conversely, students who have not completed their academic work but are in their final year of ROTC are reflected in the AS 400 total but not in the commissioning total. Finally, some students who have completed all commissioning requirements may be commissioned in a following fiscal year to control Air Force production requirements. It is noteworthy that of 29 schools with a two-year-only Air Force ROTC program, the University of Minnesota ranked first in officer production for fiscal year 1968-1969. The fiscal year 1969-1970 production total placed the University seventh out of 174 schools with an Air Force ROTC program.

Academic Year	AS 100 (Fr)	AS 300 (Jr)	AS 400 (Sr)	Total	Commissioned
1968-69 . . . . .	..	47	32	79	34
1969-70	37	27	45	109	40

Four-Year Program—The AS 100 enrollment total reflects a return to the four-year commissioning program during fiscal year 1969-1970. Resumption of this program enables graduating high school seniors who have been awarded Air Force ROTC College Scholarships to attend the University of Minnesota. It has also precipitated changes in curriculum and organization. Six additional aerospace studies credits are now offered and an additional instructor has been added to the staff. In addition to the four-year program, the highly successful two-year commissioning program will continue to be offered.

Special Activities—The University of Minnesota chapters of Arnold Air Society, the professional service fraternity for outstanding Air Force ROTC cadets, and Angel Flight, their coed auxiliary, outfitted a recreation facility and raised an additional \$300 for the state hospital for the mentally retarded at Cambridge. They were designated as the outstanding Arnold Air Society and Angel Flight in the Minnesota-Wisconsin-Dakota area during the biennium.

INSTITUTE OF AGRICULTURE

Sherwood O. Berg, *Dean*

During the biennium the Board of Regents approved the establishment of three separate faculties in agriculture, forestry, and home economics, to take effect July 1, 1970. The deans of the three faculties will report to the dean of the Institute of Agriculture.

RESIDENT INSTRUCTION

Enrollment Trends in the College of Agriculture, Forestry, and Home Economics—During the biennium, undergraduate enrollment in agriculture increased from 1,097 in fall of 1967 to 1,117 in fall 1969. Forestry numbers grew from 427 to 448 in the same period. Home economics showed a marked increase from 981 in fall 1967 to 1,286 in fall 1969. Growth in programs and enrollment continued to place major stress on both staff and facilities, with home economics particularly pressured by a shortage of instructional space.

Curriculum Trends—No major curriculum developments were initiated in the biennium although departments continued to adjust in accordance with the major curriculum revisions developed in the previous biennium. Student and staff interest in the Resource and Community Development Program continued to grow. All programs of the College showed increased emphasis on individualized instruction, including use of problems courses and independent and extended credit study arrangements. Home economics students initiated group study trips to clothing, merchandising, and manufacturing centers. The School of Home Economics launched an extended program of workshops, lectures, and seminars in international-intercultural aspects of nutrition, housing, and clothing habits that influ-

enced course content and design in the School. Horticultural science students in landscape design and environmental planning continued their annual spring tours of southern horticultural developments. There was continuous and extensive use of local resources such as the business, manufacturing, and residential communities in instruction. The considerable national interest in environmental quality was reflected increasingly during the biennium in a number of departments and courses.

Improvements in Instructional Resources—The 1969 Minnesota Legislature appropriated \$181,460 for remodeling and updating of undergraduate classroom facilities on the St. Paul campus. Although this sum is but a small portion of the total University appropriation, it has contributed immeasurably to instructional improvement and to student and faculty morale. Under the provisions of this appropriation, extensive remodeling has been completed or is currently under way in nine classrooms and basic audiovisual instructional equipment has been purchased and installed in 13 classrooms. Improvement of an additional seven classrooms is planned.

Graduate Professional Improvement Program—This Program, introduced by the Institute of Agriculture in 1964 to provide continuing education services to professional people of the state, played an increasingly important role during the biennium. A tripling of the number of courses offered and a corresponding increase in enrollments in the Program reflects the need for continuing education in the professions.

Forty-one courses, with a total enrollment of 1,100 students, were offered in 30 communities throughout the state during the biennium. Classes were scheduled between September and June of each year and ran for periods of from eight to ten weeks per course. The College of AFHE, the Agricultural Extension Service, and the General Extension Division cooperated in organizing and conducting the Program.

Placement Activities—During the biennium 775 students were awarded bachelor's degrees by the College of AFHE. Despite the increasing number of graduates continuing their education at the graduate level, the Placement Office provided counseling and interview services to approximately 60 percent of the 1969 and 1970 graduates.

Although there has been some decline in the job market for graduates of the College during the biennium, a high percentage of graduates have been placed in responsible positions. Approximately 120 industrial firms, agencies, and organizations contacted the Placement Office during the biennium in search of prospective employees.

Relationships with Prospective Students—The Institute of Agriculture devoted considerable effort in the biennium to assisting high school students, teachers, counselors, and administrators to gain an increased awareness of career opportunities in the food and fiber industry. Over 80,000 high school and junior college students saw the multimedia program "In Touch with Tomorrow." Campus tours, correspondence, and visitation procedures were used to support this educational undertaking.

Technical Colleges at Crookston and Waseca—During the biennium, final plans were drawn for development of the University of Minnesota Technical College, Waseca, and machinery was established to phase out the program of the Southern School of Agriculture at Waseca. The final year of instruction at the School (secondary level) is scheduled for 1972-1973, with collegiate instruction to begin in fall 1971.

The Crookston and Waseca operations were under the principal supervision of the Institute of Agriculture during most of the biennium. In early 1970, they were designated coordinate campuses and placed under the direct administrative supervision of the vice president for coordinate campuses and educational relationships. However, the portions of their programs that continue to be directly related to Institute of Agriculture programs will be closely coordinated with the appropriate departments or colleges within the Institute.

Long-Range Planning for Undergraduate Instruction—The Long-Range Planning Committee submitted its report to the dean of the Institute of Agriculture at the close of the last biennium. The recommendations presented were discussed

extensively with departments, schools, and faculty during the 1968-1970 biennium. Special note was made of the perception and concern shown by the Student Task Force in its recommendations concerning the quality of teaching. A number of these recommendations have been implemented, and many others are still being studied.

RESEARCH

The research program of the Minnesota Agricultural Experiment Station is broad and diverse, focusing on the problems of agriculture, forestry, home economics, and veterinary medicine. It is concerned with problems and opportunities in the food and fiber sector of Minnesota's economy and with social and economic shifts within the state, region, and nation. Support for the program is provided by general agricultural research funds combined with federal funds through the Hatch Act, other federal and state grants, and private sources. During the 1968-1970 biennium, the research program was strengthened by additional support through legislative appropriation.

At the close of the biennium, more than 300 individual research projects were under way in the Agricultural Experiment Station. The following examples of projects in the four major areas of investigation are only a sampling of total research effort during the biennium.

Production Agriculture and Forestry—Farming and forestry generate approximately \$2½ billion for Minnesota's economy. Research programs of the Agricultural Experiment Station are aimed at increasing the efficiency of food and fiber production for the benefit of Minnesotans and people throughout the world.

One of the responsibilities of the Experiment Station is to develop new and improved varieties of plant materials that enhance production and increase opportunities for farmers and that increase the amount of food supplies available at low cost to consumers. During the biennium, two semidwarf wheat varieties, *Era* and *Fletcher*, were released. *Era* has outstanding yield and agronomic characteristics, while *Fletcher* is superior to standard wheat varieties for yield and is one of the best semidwarfs available with respect to quality. Also released was a new oat selection, *Otter*, which is adaptable to areas throughout the state but will be particularly well-suited to the west-central and northwest sections. It combines high yield, early maturity, and good lodging resistance. A newly released high-yielding flax variety, *Norstar*, will replace the medium-to-late maturing varieties currently available to flax producers. The *Anoka* soybean, which produces high yields in sandy soils compared to other varieties but should not be used on high-lime soils, was also released.

The Department of Animal Science imported Finnish Landrace sheep during the biennium for use in cross-breeding programs with standard sheep breeds. The Finnish Landrace has been known to produce as many as seven lambs per ewe per breeding; standard breeds in the United States average about one lamb per breeding.

A rapid screening technique has been used to screen over 2,500 soybean genotypes from the world collection and 30,000 wheat selections for photosynthetic efficiency. No genotypes similar to corn in photosynthetic efficiency were found in either species. The fact that this number of genotypes could be screened is in itself significant, but the results clearly indicate to plant breeders and geneticists that measurement of small differences will have to suffice for the present and that the possibility of going all the way in one step was not overlooked. This research is critically important in the development of new varieties of feed grains and soybeans with enhanced protein content or with other characteristics that suit them to specific uses.

Pine forests comprise a major portion of Minnesota's valuable lumber industry. Oak trees frequently grow as weeds in certain pine plantations in northern Minnesota and various herbicides have been used to destroy them. For several years oak wilt has been tested as a silvicide to evaluate the potential of biological rather than chemical control as a means of eradicating oaks from pine stands.

Dwarf mistletoe is an economically important disease of the black spruce in northern Minnesota. The disease, which causes large witches' brooms, deformation, and eventual death of the trees, usually occurs in relatively small pockets. One successful method of control or eradication is controlled burning,

which is effective and economical but must be done carefully by experts. During the biennium, the combined efforts of the Experiment Station and the Minnesota Department of Conservation have resulted in successful control of the dwarf mistletoe, as well as improved habitat for wildlife.

In timber harvest research, a 90-year-old red pine stand was strip thinned using the full-tree and tree-length harvesting system. Results indicate that 25 percent of the stand can be harvested without damage to the residual trees. The impact of this system on soil and water quality and on tree growth needs to be evaluated further, but initial studies indicate that similar harvesting patterns in Minnesota's woodlands can facilitate mechanized timber harvesting without damage to the scenic, recreational, or environmental qualities of the forest.

Environmental Quality—There is considerable interest and genuine concern about the quality of the environment and man's impact on succeeding generations. Many studies under way in the Experiment Station are related to environmental quality.

Ten years of nitrogen applications to continuous corn on a Webster clay loam at Lamberton show that urea and ammonium nitrate nitrogen are equivalent and highly effective in corn production. Tile drainage waters appear to remove excess nitrate nitrogen from the subsoil; nitrogen fertilization at a rate of about 100 pounds per acre annually appears to be optimum for corn production with minimal nitrate nitrogen accumulations.

Several studies are investigating how to best use animal manures that accumulate from dairy, swine, and beef cattle feeding operations. The Legislature has provided essentially new facilities at all of the branch experiment stations and intensive studies are under way. Oxidation ditches are being used to remove odors and liquid waste, leaving only the solids to be incorporated into the soil. Large amounts of manure are being applied to limited numbers of acres and plowed under to determine how much can be placed in one location in a given period without excessively influencing nitrate accumulations in the soil or in underground waters. Other management techniques for minimization of surface runoff problems are injection of liquid manures and use of irrigation equipment to apply liquid manures prior to plowing. The Experiment Station has worked closely with the Minnesota Pollution Control Agency in the evaluation of the regulations being proposed for feedlots in Minnesota.

The Station is also monitoring the use of several pesticides and gathering information that will make it possible for Minnesota to determine whether it should ban certain of the "hard pesticides." In all of the research dealing with control of weeds, insects, and disease, biological control measures are a major part of the effort. A combination of chemical and biological control, however, will be necessary through the next decade.

Community and Resource Development—Minnesota ranks fourth nationally in the number of seasonal homes per capita. The economic impact of seasonal homes is substantial: in 1970, owners and guests will spend an estimated \$200 million in rural lake communities, an average of \$2,000 per unit. Two thirds of this will be spent by the vacation home owners; their guests and visitors will spend the remaining third. The influx of dollars is believed to be responsible for a growing proportion of jobs and income for residents of many northern Minnesota counties. Many locally controlled factors affect this growth. The number of seasonal homes is closely related to decisions made by local government units in which owners of vacation homes have no franchise. There are virtually no regulations concerning physical development and resource use in seasonal home communities, and vacation home owners are critical of public services and believe they are being treated unfairly in the property tax structure.

A study comparing a group of counties with seasonal homes to a similar group lacking them shows a base advantage for the former. The larger tax base is used to meet highway needs brought about by increased traffic, but there is evidence suggesting that townships in rural lake communities may not have an adequate tax base to satisfy town highway needs. Increased state or county financial aid should be considered as a policy alternative. School districts with seasonal homes have a property tax advantage, but are spending about the same amount on schools as those without. Since state aid payments to school districts are higher for districts with a smaller tax base, school taxes

on vacation homes could be reduced without creating hardship for local property owners.

The Lake of the Woods-Rainy Lake study conducted by the Agricultural Experiment Station and the Minnesota Departments of Conservation and Economic Development has generated considerable interest in the three-county area under study. The research has also shown how other communities can cooperate to determine more about their economic and social potential for the decades ahead. A complete report of this study will be made to the 1971 Legislature. Several state agencies have already inaugurated programs as a result of preliminary research findings.

The Sand Plain Experimental Field at Elk River is providing information on how the vast sand resources of central Minnesota can be used to enhance community growth and economic development. When adequate supplies of water are available, specialty crops such as snap beans, potatoes, sweet corn, cabbages, fruits, and nursery stock, as well as field crops, can be grown at profitable levels. Marketing studies involving the processing industry are being conducted concurrently. The ability to grow the crop is only part of the community development problem; it is also essential to have a market.

Quality of Life—The programs of the Minnesota Agricultural Experiment Station and of similar stations in the other 49 states have contributed greatly to the quality of life in the United States.

The Department of Horticultural Science contributed to environmental beautification during the biennium with release of several horticultural species. The chrysanthemum program released the *Yellow Glow* and the *Royal Pomp*, as well as the fiftieth selection in the program in 12 years, the *Golden Jubilee*. The *Sparkler*, a flowering crab apple with bright rosy blooms and horizontal spreading growth habit, was also introduced, as were the *Red Baron* and *Honey Gold* apples.

In a study on littering habits in the Boundary Waters Canoe Area, residence, type of group, and occupation were found to be the variables most related to sensitivity to litter. Groups returning from the BWCA were interviewed about their attitudes toward littering and compliance with littering regulations. Local people were least sensitive and complied least with the regulations. Organized groups such as Boy Scout, YMCA, and church groups noticed litter more frequently than families or groups of friends. The organized groups carried their nonburnable trash out of the area more frequently than the nonorganized groups. Regardless of occupation, all of the people interviewed seemed to be equally aware of littering regulations, but the skilled craftsmen were least aware of the presence of litter. Managers, professionals, and students carried nonburnable trash most often out of the area. The information gained from this study can be useful in developing campaigns aimed at reducing litter in recreation areas and in improving the public's general awareness of existing regulations.

CONTINUING EDUCATION

As a publicly supported land-grant college, the University is guided by the principle that education is the heritage of many, not merely a few, and that it has an obligation to return practical benefits of University research and knowledge to people who can use them. The Cooperative Agricultural Extension Service brings the University to every county and reaches more than a third of the state's nearly 3.8 million people each year. The 91 extension offices in Minnesota serve as home base for more than 250 University faculty members known as area extension agents, county extension agents, and extension home economists, with an additional 122 full-time-equivalent specialists and program staff located on the Twin Cities campus. Extension is funded cooperatively by the state through the University, by individual county governments, and by federal appropriations.

Specific Extension Programs—The examples that follow illustrate the variety of extension programs offered to Minnesotans.

Agricultural Production, Management, and Technology—This program area continued to be of major importance to the clientele of the Extension Service during the biennium. Major emphasis was placed on training of pro-

ducers in irrigation technology, on building and machinery selection and management, and on materials handling. Also offered were educational programs on landscape design, fruit production, gardening, Christmas tree culture, turf management, marketing outlook, and safe handling and effective use of pesticides, as well as programs for specialized commercial producers of sugar beets, potatoes, turf, and specialty crops such as wild rice and sunflower. Pilot programs were undertaken to apply computer technology as a decision-making aid to cattle feedlot operations and educational programs were conducted in breeding and managing livestock for higher quality meat. Use of soil testing increased 10 percent during 1969-1970, and the Dairy Herd Improvement Association program now involves 185,000 cows, with a proven return of \$8 for every \$1 invested in the program.

Family Living and Home Economics—Educational programs in this area have responded to current issues and have moved from traditional home economics emphases toward a broader view of family interests and needs, social concerns, community development, and consumerism. Perhaps the most significant development during the biennium was the implementation in 16 Minnesota counties of the federally financed Expanded Food and Nutrition Program for low-income, disadvantaged, and minority groups. Program assistants have been hired to provide information on nutrition, meal planning, and food selection to individuals in their own communities. The program, begun in January 1969, had helped more than 6,000 persons by the end of the biennium. Another nontraditional program, a "Focus on the Future for Women" symposium, was held in October 1969, with 135 women in leadership positions throughout the state in attendance.

Community Resource Development and Public Affairs—During the biennium, the strong upsurge in public concern about the environment generated a demand for relevant educational programs. Extension efforts stressed use of educational processes to create citizen awareness of the need for planning and to assist citizens in developing problem-solving techniques in such areas as lake pollution, unzoned housing, and economic issues of pollution. The Extension Service also expanded work on problems of low-income people, tourism-recreation, and special land-use problems; held socio-economic conferences for senior seminarians; and worked with resource conservation and development districts.

Youth Development—The youth development program reached about 57,000 boys and girls between 9 and 19 through the organized 4-H Club and an additional 40,000 through television, the public schools, and special summer programs. More than 14,000 young people in 4-H are members of families with annual incomes of \$3,000 or under. The program is conducted locally through the efforts of more than 11,000 volunteer teen leaders and about 14,000 volunteer adult leaders. Programs for disadvantaged inner-city youth, such as one conducted for Spanish-American young people in West St. Paul, and special education classes for a rapidly growing number of young people are examples of the expansion of educational efforts beyond the traditional audience in rural areas and small towns.

Marketing and Utilization of Food and Fiber Products—Extension programs in this area during the biennium were based on priority problems identified by clientele groups. Price and market outlook programs were offered to producers and firm managers to assist them in short-run decisions and long-term planning. A series of four seminars was held for Twin Cities businessmen on subjects related to the changing forces in agriculture. Grain marketing programs included instruction on artificial drying, storage, grading, transportation contracts, and pricing. A series of short courses on capital management was conducted for managers of cooperatives and other agribusiness firms.

Special Projects Development and Coordination—During the biennium, the Minnesota Analysis and Planning System (MAPS) has become the major statewide computer-based data library in Minnesota. The number of organizational users, including state and federal agencies, now totals over 50. MAPS has been designated a Summary Tape Processing Center for the 1970 census. A 30-month research and educational effort dealing with metropolitan Twin Cities alternative growth pattern choices and their fiscal import on local municipalities

and school districts was completed during the biennium. More than 160 public and private organizations were involved in this program. Toward the end of the biennium, a weekly statewide television program dealing with public policy issues in Minnesota was initiated, and the Summer Institute on State and Regional Planning and Development was planned by the Extension Service in cooperation with the School of Public Affairs and the Department of Agricultural and Applied Economics.

Information and Educational Aids—This project area provides support to all programs in the Extension Service. The Information Service handled 450 extension publishing jobs during 1969, with nearly a million publications distributed to the public. More than 1,300 news stories and 150 pages of educational radio copy were provided to the mass media. There were 572 radio programs broadcast over KUOM and another 664 broadcast over commercial stations throughout the state. Television programs totaled 671. Special efforts included expansion of the telelecture as a means of bringing more University resources to outlying areas.

Needs of the Agricultural Extension Service—The most pressing need of the Extension Service is additional staff. The demand for extension programs continues to increase, and while important new staff members were added during the biennium there are still many unfilled needs. Growing areas of concern such as environmental quality, poverty, rural development, and expanded youth programs cannot be dealt with by the Extension Service without additional staff assistance. State staff are needed to provide specialized expertise, and additional area and county staff are needed to provide information to more of the people who can use it. Expanded knowledge developed through research on campus is of limited use to the general public without sufficient staff to provide and explain it so that it can be put to practical use.

Future Programs—The Extension Service is planning a great variety of programs for the future. Some will reflect increased emphasis on present program areas and a few will be new. The new programs will cover topics such as alternative resources for part-time farmers, labor and labor relationships, food services management, drugs, consumer information and protection, legal affairs education for laymen, social and family values, and environmental quality. Increased efforts will be made to reach new clientele among low-income people, minority groups, young families, handicapped people, and others, in addition to offering continued service to present clientele.

Methodology will include increased use of technological innovations such as telelecture, single concept films, mobile exhibits, and meeting units. Mass media usage will continue at a high level, with increasing emphasis on television, and greater use will be made of specialized publications for specific audiences.

INTERNATIONAL AGRICULTURAL PROGRAMS

The race between the world's population and its food supply is adding to the work loads of this and other U.S. colleges of agriculture. These institutions are being asked to provide more professionally trained people for service abroad, to train more foreign students, and to do more research. Together with more than 30 other U.S. universities, Minnesota is involved in overseas technical assistance, primarily assisting in the development of institutions for professional training and research in the developing countries. In addition, the University is continuing to expand the international aspects of resident instruction programs so that both foreign and U.S. students are better prepared to contribute to a more adequate food supply system for the world in the years ahead.

Chile Agricultural Project—The Chile production education project ended in June 1970 except for continuation of the study program of four Chilean graduate students enrolled in American universities. For six years a team of Minnesota extension workers had been assisting the government of Chile in expansion of food production by improving facilities for supplying technical information to farmers. The Minnesota team assisted in the development of two of the most essential elements of an effective system of production education: in two colleges of agriculture there are now effective training programs to pre-

pare students for careers in extension work, and a production specialist group has been trained.

When the team left Chile, there were numerous expressions of appreciation for Minnesota's work. These came from all sections of the society, including government leaders, technicians, and large and small farmers. The project was financed by the Ford Foundation.

Tunisia Agricultural Project—The Minnesota team in Tunisia continued to make good progress during the biennium. Major emphasis in the project has been given to establishment of the research program of the Bureau of Economic Studies in the Ministry of Agriculture. All of the research is designed to meet the need of the Ministry for economic information useful in dealing with policy problems involved in Tunisian agricultural development. The research has been focused on the principal problem areas of Tunisian agriculture. As wheat and barley are the country's principal field crops, major attention has been given to the policy problems of cereals production and marketing. A study also was made of olive oil price policy, as olive oil accounts for a major proportion of Tunisia's export income. Preliminary studies are under way to investigate the agricultural labor force and employment situation, to look into cattle marketing and pricing systems, and to analyze production efficiency of large-scale co-operative production units. Considerable attention has also been given to development of a system for the appraisal of potential water development projects. From time to time, the Minnesota team has been called on to provide staff papers for the Ministry on a variety of economic problems.

As a part of the project, five Tunisians are studying in U.S. universities for advanced degrees in agricultural economics. They are to return to their own country as staff members of the Bureau of Economic Studies.

Agricultural Project in Morocco—A new project has been started in Morocco in cooperation with the University of Louvain in Belgium, with financial support from USAID. The two universities will work jointly to establish programs of specialized instruction for advanced students and to initiate research programs at the Hassan II Institute of Agronomy. Initially, the work will be in the field of soil science, with work in plant sciences to be developed later. A technical library will also be developed, as will a program of intensive instruction in the English language. In addition, a number of Moroccan students will come to Minnesota for graduate study to prepare for faculty positions at the Agronomy Institute.

Staff Activities Abroad—As in the last biennium, Institute of Agriculture faculty and staff members participated in a variety of conferences, seminars, agricultural projects, and research programs abroad.

Peace Corps Intern Training Program—There is a growing need in the developing countries for persons with professional skills in areas such as agriculture, forestry, and home economics. In an effort to meet this need, the Peace Corps has requested a few agricultural colleges to establish specialized training programs designed to prepare seniors and graduate students for professional service as volunteers.

An intern training program was established at Minnesota in 1969. Twenty-three students participated in the program, which included a seminar on agricultural development and special language instruction. Intensive language training continued during the summer of 1970. The new volunteers will go to Morocco in September 1970 to begin their two years of service. Each volunteer has a specific professional assignment consistent with his training at the University.

A Peace Corps contract for a second program has been signed and plans are being made for the 1970-1971 training program.

Undergraduate Instruction—The World Food Supply Problems seminar was continued as a joint effort of several departments of the Institute, as well as the College of Veterinary Medicine. The seminar is a requirement for students participating in the Enrichment Program in International Affairs, although enrollment has included other undergraduate and graduate students.

Enrichment Program in International Affairs—The increasing interest of undergraduate students in international work continued to stimulate participation in

the enrichment program during the biennium. The program emphasizes the planning of study programs that will enrich the student's education with regard to the international aspects of his planned professional career. During the biennium, certificates were awarded to three graduating seniors and three new students enrolled in the program.

Graduate Instruction—The Institute of Agriculture continued to provide training at the graduate level for students from foreign countries. While many of these students are self-supporting, some do receive assistance from private foundations, their own governments, USAID, or international organizations. During the biennium, about 160 foreign graduate students from 36 countries were enrolled in agriculture, forestry, or home economics.

Foreign Participant Training—Special programming was arranged for 150 official visitors and students from foreign countries during the biennium through the cooperation of Institute departments, the Extension Service, and the Experiment Station. The length of individual programs varied from one day to one year and involved not only professional meetings on campus, but also farm visits, tours of branch experiment stations, meetings with county extension people, and some individually arranged academic study.

Minnesota Students Abroad—Eighteen AFHE undergraduate students participated in international work-study programs during the biennium. Ten of the students traveled abroad under the sponsorship of established scholarship programs; individual programs were arranged for the other eight. The overseas programs varied in length from three months to 1½ years, with the students traveling to Sweden, Finland, England, Denmark, Germany, and India.

COLLEGE OF BIOLOGICAL SCIENCES

Richard S. Caldecott, *Dean*

The College of Biological Sciences, which was established in 1965, rapidly developed a departmental and program structure that conformed to the mandate that its teaching and research programs tie together the life sciences programs at the University. During the biennium, there were a number of major developments that influenced both the administration and the educational programming within the College.

Personnel—Changes in leadership were effected in the Department of Genetics and Cell Biology, the James Ford Bell Museum of Natural History, and the Field Biology Program. Frederick Forro, Jr., became head of the Department of Genetics and Cell Biology in September 1968. Walter J. Breckenridge retired from directorship of the Museum on June 30, 1969; a two-year search resulted in the appointment of Harrison B. Tordoff, who assumed the directorship effective July 1, 1970. Alan Brook and Robert C. Bright served as acting directors during the interim. William H. Marshall resigned as chairman of the Field Biology Program to join the faculty of the Department of Entomology, Fisheries, and Wildlife in the Institute of Agriculture and David F. Parmelee was appointed to replace him effective July 1, 1970. Eville Gorham, head of the Department of Botany, tendered his resignation in April 1970 to become effective in September 1971. This period will provide time to carry on a search for a replacement.

Much time during the biennium was spent in searching for additional and replacement staff to carry out educational commitments of the various academic units. With monies from allotments made during the biennium, the Departments of Biochemistry, Botany, Ecology and Behavioral Biology, Genetics and Cell Biology, and Zoology each established and filled one new position. The Department of Botany also received a transfer position from the College of Pharmacy. Curatorial positions in herpetology and systematics were established in the James Ford Bell Museum of Natural History, and the appointees were given academic status. Staff replacements during the biennium included one in biochemistry, two each in botany, ecology and behavioral biology, and genetics and cell biology, and four in zoology.

Organization—Organizational changes were made in several of the academic areas. Major changes in the Department of Biochemistry have resulted from

wider participation of the staff in interdepartmental programs such as the graduate programs in systematic and evolutionary biology, genetics, physical chemistry, nutrition, and microbiology. The Department of Genetics and Cell Biology transferred administrative responsibility for graduate genetics programs from the Genetics Center to the Department. The Genetics Center was discontinued as an organization; genetics faculty from the Center are continuing their responsibilities in the departmental Genetics Program. The Department now has a director of admissions for both the Genetics and Cell Biology Programs and individual directors for graduate programs.

Curriculum—Since the inception of the College, it has been of concern to the faculty that the undergraduate programs provide little latitude for curricular innovation. During 1969-1970 the requirements were liberalized somewhat and examination of the problem is continuing.

One notable addition to the undergraduate offerings of the College is a course entitled Ecology for Engineers. This course will be offered for the first time in fall 1970 and it is anticipated that annual enrollment will exceed 500. The Department of Biochemistry is now offering a two-quarter introductory course that is facilitating completion of chemistry requirements for most non-science-oriented students in the Institute of Agriculture. The Department of Botany has also developed a new course, Biology and the Future of Man, for non-science majors. In spring 1970 this Department began a complete curricular review, with plans to overhaul all course content by fall 1971.

The Department of Genetics and Cell Biology has organized two core courses for the graduate program in cell biology and has reevaluated the foreign language requirement of the graduate programs. This requirement has been dropped except in cases of individual students whose specialization requires language proficiency. Faculty members of the Department are attempting to devise program changes that will enable graduates to respond to future career demands and to take advantage of changing opportunities in the field. There is also concern as to whether teaching should be given greater emphasis in the graduate education program.

The Department of Ecology and Behavioral Biology has been active in the development of basic ecology courses for non-science majors. Notable among these was the television course entitled Ecology: The Final Crisis. Special courses for engineering and physical science students have been initiated as well as advanced interdepartmental courses in environmental measurement and seminars in behavioral wildlife statistics. In 1969 the Graduate School approved establishment of the M.S. and Ph.D. degrees in ecology.

Enrollment—Undergraduate enrollment in the College as well as in its service offerings has increased at a faster rate than expected. The College admitted its first eight students (juniors and seniors) in fall 1966; spring 1970 enrollment was 150, with an increase to over 200 expected for fall 1970 and indications that this number will double within two years. If a comparable doubling occurs in the number of biology majors in the College of Liberal Arts, who also are advised by CBS faculty, the resources available to the College will be severely taxed. CBS faculty members also advise biology majors in the College of Education and prebiology majors in the Institute of Agriculture. The number of non-CBS advisees has increased from approximately 285 in fall 1968 to 465 in spring 1970. The College's basic service course (Biology 1-2) has increased its enrollment steadily even though only those students for whom the course is a requirement for their intended major may enroll. The Biology 1-2 enrollment was 1,567 in fall 1968 and is expected to exceed 1,900 in fall 1970. Enrollment by nonmajors in other CBS courses has also increased at a rapid rate, reflecting a growing recognition that the biota on this planet are both unique and fragile.

The increase in graduate student enrollment during the biennium was modest, but can be explained in part by social circumstances such as the draft and the cost of living. Inadequate space availability, particularly in the Departments of Zoology, Botany, and Ecology and Behavioral Biology, further explains the limited increase. The space limitations in the Department of Botany will be eliminated with completion of the new St. Paul bioscience center in 1972-1973. It was encouraging to CBS faculty that the number of graduate students with CBS advisers increased from 170 in 1966-1967 to 279 in 1969-1970. This is in the face of enrollments that have been holding steady or falling

in many areas of graduate education. The vast majority of these graduate students are supported on fellowships, research assistantships, and teaching assistantships.

Additions and Needs—A bioscience building is under construction on the St. Paul campus following an appropriation of approximately \$9.5 million by the Legislature and grants-in-aid of approximately \$1.3 million from the U.S. Office of Education. The new building will house the Department of Botany, currently located on the Minneapolis campus, and the Department of Genetics and Cell Biology, currently located in the Snyder Hall-Gortner Laboratory complex.

Inadequacies of space, facilities, and supply monies continued to create problems for all academic units during the biennium. The Bell Museum wants to build a first-rate research and teaching program, an aim already advanced with new staff additions. However, while completion of the exhibit areas and building of displays were facilitated by a special legislative appropriation coupled with internal University support, it will be necessary to provide for effective exhibits as well as for their administration.

Space and facilities shortages continued to be a major limitation to the Department of Botany, but much of this limitation will be mitigated upon completion of the bioscience building in 1972-1973. The new facility will also provide the Department of Genetics and Cell Biology with the opportunity to attract outstanding faculty. The Department of Ecology and Behavioral Biology reached optimum expansion during the biennium in the space provided for it in the James Ford Bell Museum of Natural History. The Dight Institute also suffered from space limitation, but the move of the Department of Botany to St. Paul will eventually free space for the Institute in the Botany building.

The Cedar Creek Natural History Area, in which an expanded program of research on unpolluted ecosystems is being developed, needs additional personnel for day-to-day management and protection of the area. A resident biologist position is needed for the Itasca Biology Station to provide continuity and depth in biological research on a year-round basis.

Research—The faculty of the College of Biological Sciences was involved during the biennium in many research projects supported by federal agencies, private foundations, the Graduate School, the Minnesota Agricultural Experiment Station, and private citizen contributions. Examples of such research include NSF projects in waterfowl research, AEC projects studying the influence of radiation on distribution and breeding of animals, studies of algae in Minnesota lakes, and genetic and biochemical investigations of barley chloroplast mutants. The Department of Genetics and Cell Biology received NIH support for research on membrane changes, carcinogenic factors, and application of surface physics to cell biology.

The research efforts of the Dight Institute for Human Genetics were aided by a bequest of \$231,728.95 from the estate of C. M. Goethe of Sacramento, Calif. Added to the endowment of the Institute, this sum helped to provide an operating base that was extremely useful during this period of concern about continued federal subvention for research and training. Also, despite the generally unfavorable climate for federal support, the Institute received renewal of a grant for a graduate training program in behavioral genetics that was initiated in 1967.

The total dollar value of federal research grants to CBS faculty increased from \$1,375,863 in 1966-1967 to \$1,504,260 in 1969-1970. This can be viewed as an accomplishment because of the reduced availability of federal funds for education, but it is a minimal support base and every effort will be made to increase it.

Community Service—A number of CBS programs are of direct and immediate benefit to the community. For example, the Cedar Creek Natural History Area, which serves as a site for classes of ten colleges and nine University departments, was visited by approximately 1,000 interested nonstudents during the biennium. The public education program of the James Ford Bell Museum of Natural History was greatly expanded as attendance increased by 40 percent over the previous biennium. The 82,341 persons who visited the Museum, plus an additional 20,750 who attended Sunday programs, brought the total to over 100,000 for the biennium. Communication with public schools was strengthened

by a special legislative appropriation of \$15,000 for 1968-1969 and \$20,000 for 1969-1970. Faculty members, particularly from the Department of Botany and the Department of Ecology and Behavioral Biology, accepted numerous speaking engagements, and most faculty members devoted time to public service in their areas of specialization.

SCHOOL OF BUSINESS ADMINISTRATION

C. Arthur Williams, Jr., *Acting Dean*

Enrollment—The School of Business Administration and the Graduate School of Business Administration continued to enjoy an increased popularity among students. While the increase in numbers presented problems in terms of quality education, it also provided incentive for the administration and faculty to improve the process of educational delivery.

Full-term enrollment data for the biennium and projected enrollment figures for 1970 are presented below.

	1968	1969	1970
Undergraduate (Jr. and Sr.)	917	921	975
Graduate	687	723	775
M.S.	133	159	175
M.B.A.	228	233	260
M.B.A. (Evening)	245	251	250
Ph.D.	81	85	90

Undergraduate enrollments during the biennium reflect a vitality of education in a program that had been thought to be declining. The increases occurred at the same time that action was being taken to strengthen admissions requirements and to provide more challenging opportunities for students. The School is now attracting a substantial number of students who are interested in business as a form of service to society and who are active in community projects.

Graduate enrollment reflects the increased amount of interest in higher level preparation for responsible positions in business management. The evening M.-B.A. program, which has been in existence for ten years, has now established itself as a regular part of the offerings in the School. In fall 1968 efforts were made to regularize the program by requiring students in the advanced courses to register for two courses in each quarter, enabling them to complete the second half of the program in two years of evening work. This had the educational advantage of enabling students and faculty to develop more group cohesiveness and the special advantage of making more economical use of faculty resources. The program itself is considered to be as rigorous and demanding as the day-school M.B.A. program. While there are a number of dropouts, there is sufficient interest to maintain a constant student body of approximately 250.

The School is responsible for a substantial program offered through the General Extension Division. Approximately 20 percent of the course registration in the General Extension Division is in business administration courses, and more than 300 students have taken sufficient work in evening classes to be considered degree candidates in the School of Business Administration. The degree and nondegree credit business administration courses offered through Extension are the responsibility of the SBA faculty, placing a heavy burden on the administrative officers of the School to see that courses are staffed properly. A part-time faculty of over 100 in addition to a number of regular faculty (paid on an overload basis) make up the total business administration faculty of the General Extension Division.

Instruction—The required portion of the undergraduate curriculum was not changed substantially during the biennium. Several courses were added in important new areas of study such as the social and environmental concern of businessmen. Among the new courses was a seminar conducted by faculty and

students in the television studio. The sessions were taped for later rebroadcast on KTCA-TV. Courses in government and business and in social insurance also were offered. Efforts were made to develop more interest on the part of the students in the broader questions of business responsibility.

One of the innovations in teaching was the use of the field research method. The School has been engaging in field research projects for ten years or more, but during the biennium increased emphasis was placed upon student participation in research studies as an integral part of the learning process. Students in finance assisted in the Minnesota Over-The-Counter Market Studies conducted by faculty members, and students also participated in market research and feasibility studies that dealt with the establishment of a shopping center on Plymouth Avenue in Minneapolis. The results of this teaching method have indicated to the faculty that involving students in real problems can afford a substantial educational opportunity that does not exist in the classroom. Plans to broaden field research work in the future are being discussed.

Another innovation was the use of simulation techniques that involved new equipment such as CRT display units of the Management Information Systems Research Center. During 1970-1971, a more ambitious experiment involving the teaching of Fortran and other computer languages will be conducted.

The Management Information Systems (MIS) Program was introduced in 1968. By the end of the biennium, more than 75 persons were registered as master's or Ph.D. degree candidates in the MIS field. Other important changes were elimination of the M.B.A. oral comprehensive exam and more careful structuring of Ph.D. examination requirements. The difficulties of administering the M.B.A. oral examination, plus its doubtful educational value at the end of the program, were factors influencing the faculty to make the change.

The newly created Task Force on Urban Affairs conducted several seminars and proved to be a catalytic agent for stimulating work in the black community. The School and the Urban League cooperated in offering courses for black businessmen, a program that has been cited for excellence in its field and that will be continued in 1970-1971.

Administration and Faculty—Dean Paul V. Grambsch, who has headed SBA since 1960, asked in fall 1969 to be relieved of his administrative duties as of June 30, 1970, to return to teaching and research. A successor to the position is being sought.

Professor Robert K. Mautz of the University of Illinois served as AICPA Distinguished Visiting Professor of Accounting during 1968-1969. Professor Irwin Friend of the Wharton School of the University of Pennsylvania served as the first Frederick Kappel Professor of Business-Government Relations during 1969-1970. The regular faculty had a net increase of two members during the biennium. In fall 1970 it will number 56. Unlike the situation in many other fields, there is a shortage of high quality faculty candidates in business administration. Recruiting efforts therefore have absorbed a considerable amount of faculty and administrative time. The net effect has been positive, however, and the faculty, while still relatively small in numbers, is growing in stature.

Conferences and Symposia—The Ruvelson Lecture series in business-government relations brought Edward S. Mason, faculty member from Harvard University, to the campus in 1969 and Walter Hoadley, senior vice president and economist of the Bank of America, in 1970. Both of these lectures were open to the public and have been published and circulated throughout the country. Under the auspices of the Merrill Cohen Memorial Fund for the study of ethics in business, a symposium on ethics and the accounting profession was held in spring 1969. Speakers included Thomas Wise of *Fortune*, Herman Bevis of Price Waterhouse and Company, and Jack Seidman of Seidman and Seidman, New York. The symposium was well attended and publication of the proceedings was received with interest across the country.

The B-Day luncheon convocations, sponsored by approximately 60 business firms, featured Myron Christy, president of the Western Pacific Railroad and an alumnus of the School, in 1969 and Wheelock Whitney, chairman of Dain, Kalman and Quail, in 1970. The roundtable sessions preceding the luncheons demonstrated considerable student interest in exchanges with businessmen. Under the auspices of the SBA Alumni Association, a distinguished teaching award was presented at each of the B-Day luncheon convocations during the biennium. In 1969

the award was made to J. Russell Nelson, professor of finance, and in 1970 to K. Fred Skousen, assistant professor of accounting. It is hoped that this prestigious award will be continued.

The administration and faculty worked closely with the SBA Alumni Association in sponsoring the annual alumni institute, which involves students, alumni, and others from the business community. The principal speaker at the fall 1968 institute was Howard Johnson, president of the Massachusetts Institute of Technology; the speaker in 1969 was William Lear, investor and president of Lear Jet Company. The 1969 alumni institute represented the official recognition of the fiftieth anniversary of the School, and retired faculty and deans were invited.

The alumni institute is now in its sixteenth year and has established itself as a major force in the community. Efforts were made in the last two years to direct the afternoon discussions to matters of substantial national importance rather than technical subject matter. Among the topics discussed in recent years are urban transit difficulties, problems of the consumer, financing mergers and acquisitions, and business responsibilities to minorities. The institute is a successful outreach and part of the educational mission of the School of Business Administration.

Research—During the biennium SBA faculty members contributed 160 articles to professional and academic journals and authored or contributed to 40 books. The growing excellence of the faculty is evidenced by the acceptance of their contributions to distinguished journals, in which the worth of an article is judged by other scholars on an unbiased basis.

Special attention was paid to state and regional problems during the biennium. The Minnesota Over-the-Counter Securities Market work on Minnesota tourism received widespread attention.

Much of the research activity of the faculty is channeled through the three research centers: the Center for Experimental Studies in Business, the Industrial Relations Center, and the Management Information Systems Research Center. The research efforts of each are described below.

Center for Experimental Studies in Business—During the biennium, the Center expanded its activities by increasing the amount of research conducted under its auspices and by extending its educational activities to include development of new teaching techniques and of instructional materials to be used with those techniques. Research focused on managerial decision-making. Major research studies included investigations of the process by which decisions are made and a set of studies on consumer behavior, marketing communications, and business and society whose primary purpose was to provide concepts and facts useful to the decision-maker. Experimental studies of the decision-making process involved development of several novel computer-dialog routines that enabled decision-makers to utilize a powerful computer. These man-machine interaction programs are now being used in some SBA courses and show considerable promise as teaching devices.

Industrial Relations Center—The twenty-fifth anniversary of the Center was marked by a conference held May 12 and 13, 1970, and attended by several hundred alumni, members of the profession, and representatives of professional associations and educational institutions. The Honorable James Hodgson, Secretary of Labor and a Minnesota alumnus, was presented an Outstanding Achievement Award by President Moos. Long-service members of the Center's Advisory Council were honored: Philip W. Pillsbury, Joseph Prifrel, Jr., and J. R. Sweitzer have served the full 25 years. A new annual Outstanding Teacher Award was presented to Professor René Dawis and awards for outstanding student research papers were presented by Iota Rho Chi, professional graduate fraternity in industrial relations.

Another twenty-fifth anniversary year activity was the establishment of the Industrial Relations Center Reference Room Trust Fund. Earnings from the Fund will be used to supplement the noted Industrial Relations Center reference collection. A donation of \$150 will "buy a book a year in perpetuity." Over \$20,000 has been contributed and more funds are being received. Special publications and studies being published for the anniversary include "Use of Biographical In-

formation" (weighted application blanks), a study of the employment interview, and a new survey of personnel ratios.

Center research programs during the biennium included studies of approaches to evaluation of personnel administration; human resource accounting; manpower forecasting; personnel decision-making; organization structure, behavior, and performance; models of organization effectiveness; relationship of organizational criterion standards to structural-functional characteristics of the organization; organizational climate in relation to job satisfaction, organizational goals, and individual motivation; structure of the labor movement in Minnesota; frameworks for collective bargaining in the public sector; decision-making in the employment interview; interpersonal interaction in employment; performance appraisal and appraisal counseling; participation in group meetings; work adjustment; theories of work motivation; employee performance and job satisfaction; wage-price mechanisms; labor market processes in newly industrialized communities; housing conditions and employment patterns in metropolitan poverty areas; internal labor markets of employing organizations; stochastic process models for manpower forecasting; personnel assessment; identification of ability and aptitude components of performance in ability tests; measures of business moral judgment; taxonomy of managerial problem-solving activity; managerial personal value systems in U.S. and abroad and their behavioral relevance; and attitudes toward compensation. This list is not inclusive, nor does it include the numerous graduate dissertations and research papers. It is noteworthy that the Center's research program is beginning to move in the direction of simulation studies aimed at integration of the field.

More than 200 students have received M.A. degrees in industrial relations, and the first six candidates have successfully completed the new Ph.D. program in industrial relations. Current enrollment in the program is approximately 60 M.A. and 30 Ph.D. candidates. About half of these receive fellowships and assistantships. A new fellowship program in manpower and computer technology has been initiated.

The Labor Education Service (LES) of the Industrial Relations Center conducts special programs as well as conferences and courses for union leaders and members. Among these programs are the Midwest OEO Labor Leadership Project, which is training 110 union leaders from four states to deal with problems of alleviating poverty; the Older Worker Specialist Project, which trains personnel in the Minnesota Department of Manpower Services to give improved services to older workers; and the Job Safety Specialist and Labor Rehabilitation Program. In addition, LES is continuing its Union Leadership Academy and Basic Labor School (a three-year night school program), is administering nine labor scholarship programs and a one-year foreign student program, and is continuing to produce audiovisual and publications materials.

The Industrial Relations Center has an active publications and dissemination program, with a mailing list of several thousand. The faculty in industrial relations provides an active extension program offering several core courses each year to about 1,000 students, many of them practitioners.

Management Information Systems Research Center—The School of Business Administration established the Management Information Systems Research Center (MISRC) in 1968 to focus research efforts in management information-decision systems. The Research Center was the first of its kind and established Minnesota as a leader of research in computer-based management information systems.

The Center is located in Blegen Hall, adjacent to the School of Business Administration tower and the West Bank Computer Center. It contains office and other support facilities for a research staff of about 20 and houses a medium-scale CDC 3200 computer and the large-scale CDC 6600. It also has a laboratory with cathode ray tubes for man-machine research.

The research efforts of the Center are directed toward contributing significantly to theory development and providing results with immediate practical application. The Center provides support, both facilities and funds, for faculty members and graduate students engaged in research related to management information systems. Because of the interdisciplinary nature of the problems, various disciplines such as economics, statistics, psychology, and sociology are represented in the research work of the Center.

To ensure that research is not divorced from the realities of the problems to

which it is addressed, the Center maintains close and continuous interaction with the business community through the MISRC Associates Program. Eighteen large Minnesota-based companies participate as Associates, each with a representative who directs his company's participation in the research program. For selected research projects, the companies provide a business laboratory for analysis, design, and experimentation. Another objective of the Associates Program is to provide a vehicle for relating the experience and needs of business organizations to the researchers in the Center. The result of this interaction has been improvement of both the relevance and the quality of the research being performed. Also, without the additional financial resources provided by the Associates Program, neither the Center nor the related MIS graduate education program would be possible.

Placement Office—During 1969-1970, representatives from 358 companies arranged for 470 interview schedules and students signed up for 3,974 interviews. In 1968-1969, 4,266 interviews were generated from 459 schedules. The accounting field was again the area of greatest demand. Sales personnel led the field of non-accounting manpower needs.

About 70 percent of SBA graduates were available for immediate employment; 23 percent went into the military service upon graduation. Only 7 percent planned graduate study, probably in part because of the uncertain military situation.

At the bachelor's degree level, 84 percent of the graduates obtained employment in Minnesota. At the master's degree level, 50 percent of those reporting by July 1, 1970, had remained in Minnesota.

The Placement Office maintains records of salaries accepted by graduates of the School. Data on 1969-1970 accepted salaries indicated that the business administration graduate with a master's degree could expect to earn an average of \$1,010 per month, an increase of 6 percent over the 1968-1969 mean salary of \$951 per month. Average monthly salaries for graduates with bachelor's degrees rose from \$692 in 1968-1969 to \$717 in 1969-1970.

One of the most significant developments in the Alumni Placement Service during 1969-1970 was the number of returning servicemen to whom help was provided—50 percent of the reactivated alumni. Men with completed military obligations continue to be a valuable commodity, and they have had little difficulty in finding jobs. The primary source of alumni referrals to employers continued to be the current, regular lists that were circulated to more than 480 companies throughout the nation. The College Placement Council computer placement service, GRAD, continued to expand and remained a major factor in the placement of alumni.

Consultative Council—In spring 1968 President Moos appointed 21 business executives from the Twin Cities and the state to serve as an advisory council to the dean, faculty, and students of the School of Business Administration. Hugh Galusha, Jr., president of the Federal Reserve Bank of Minneapolis, was appointed as the first chairman, and in spring 1969 Leonard Murray, president of the Soo Line Railroad, was appointed as his successor. Council members were appointed for three-year terms.

The first meeting of the Council was concerned with the on-going program of the School. Subsequent meetings dealt with curriculum revision, management development programs, and School community relations programs. The Council has had the opportunity to meet with students as a part of each program.

Special Student Programs—In conjunction with other University programs of reflection held during the latter half of spring quarter 1970, the School of Business Administration, through various student groups, sponsored a series of programs dealing with the war in Indochina. The highlight of the programs was the appearance of a distinguished economist, Professor Kenneth Boulding of the University of Colorado. The programs represented a reasoned and thoughtful approach to the major issue of the day.

UNIVERSITY COMPUTER SERVICES

Frank Verbrugge, *Director*

Organization—The office of University Computer Services was established in 1968. It is headed by a director who reports to the vice president for academic

administration. Functions of the office include establishing policies for University planning and for use and development of computing facilities and services and coordination and review of major funding for computing facilities and services, including those intended to meet special needs for research and instruction. An all-University advisory committee, which previously reported to the President, serves as a policy board for the director.

The Hybrid Computer Laboratory was established as a fiscally separate unit with its own director, Associate Professor Stephen Kahne from the Department of Electrical Engineering. The facilities of the laboratory have been expanded through purchase of additional peripheral equipment for the hybrid computer and leasing of a high-speed interactive graphics system. Available on an all-University basis for research and instructional use, the facility serves a wide variety of functions in the area of public service.

At the end of the 1968-1969 academic year, Professor Marvin Stein resigned as director of the University Computer Center to become acting head of the newly established Department of Computer, Information, and Control Sciences. Associate Professor Richard Halverson from the Department of Electrical Engineering accepted the position of director for a two-year period.

In spring 1970 it was decided to establish the West Bank Computer Center as a fiscally independent center with its own director, with some funding to be provided on an interim basis for 1970-1971. Professor Thomas Hoffmann, chairman of the Department of Management Sciences, accepted appointment as acting director for 1970-1971. A similar arrangement was decided upon for the Duluth campus. The UMD Computer Center, to be initiated at the beginning of fiscal year 1970-1971 with its own budget and director, will be part of the all-University computing system. Professor John Gergen, from the Department of Physics at Duluth, will become the first director, reporting to the director of University Computer Services.

Facilities

The 6600 System—During the biennium two remote high-speed stations were added to the 6600 system, both with a stand-alone capability for interactive computing. The CDC 3300 at the Health Sciences Computer Center was connected to the 6600 through a high-speed communications line and can now be used for local processing, special interactive computing, and as an input/output station for batch processing on the 6600. A CDC 3200 located on the West Bank of the Twin Cities campus was purchased through combined University funding and grants from industry.

Plans were initiated in 1970 for establishment of a number of medium-speed remote terminals to the 6600. This development was stimulated by interest in, and need for, a greater distribution of remote terminals and by the University's decision in 1969 that the 6600 could be made available as a part of a statewide computing complex.

The output capability of the 6600 was increased through the acquisition of a high-speed Electron Beam Recorder as a print-out device. This EBR equipment has an output speed approximately 20 times that of high-speed printers; it records the data directly on microfilm. During 1970 plans were made to add another high-speed printer at the site of the 6600.

University of Minnesota, Duluth—In September 1969 a CDC 3200 was acquired for Duluth on a time-purchase plan. It replaces the IBM 360/44 that had been leased on an interim basis.

Health Sciences—In February 1970 the contract for the 3300 was changed from a leasing contract to a time-purchase plan extending three to five years. Funding is provided by the University, a research and development grant from the National Institutes of Health, and income from services.

Time-Sharing Facilities—Time-shared services were established at the University in individual departments and units through purchase of computing services from commercial vendors. Approximately 25 such terminals were acquired during the biennium. These include two terminals at the University of Minnesota, Morris, initiating a computing capability on that campus.

A statewide plan for computing to be presented to the 1971 Legislature for funding includes a time-sharing facility internal to higher education. The primary

users of this system will likely be the University and the State Junior College System.

Cooperative Efforts—Some computing units not fiscally under the jurisdiction of the director of University Computer Services continually maintain close interaction with the all-University system. One of these is the Computer-Assisted-Instruction Program in the Programmed Learning Center. Partial funding for this activity was provided by federal grants, the remainder by University Computer Services. Also during the biennium, a computer-based program in beginning German was completed and work was initiated in a number of other areas, especially in the health sciences. During 1969-1970 the first-year German course was offered to approximately eight students; plans were made to provide this instruction to a full section of approximately 30 students during 1970-1971.

Statewide Plan—During 1969-1970 an extensive study was made of the state's computing needs, including those for higher education and state and local government. The consulting firm of Analysts International Corporation was selected to make the study, and Peter Roll, associate professor of physics at the University, was given a leave of absence to direct the study for the higher education component as a staff member of the Higher Education Coordinating Commission. The studies were made with the understanding that, subject to approval by the Governor's Advisory Committee on State Information Systems and, for higher education, by the Higher Education Coordinating Commission, the plan would be submitted to the 1971 Legislature for funding. It would then become the basic plan for computing development in Minnesota.

DEPARTMENT OF CONCERTS AND LECTURES

Ross Smith, *Director*

The retirement in 1969 of James S. Lombard after 25 years and the appointment of the present director brought about certain changes in the structure and functions of the Department. In addition, the director was given the responsibility of acting as University arts coordinator to work with the various arts departments in programming and coordinating efforts on campus.

Among major changes during the biennium was the creation by the University Senate in 1969 of the Campus Committee on Convocations and the Arts, to consist of six faculty members and three students, with the University consultant for cultural affairs and the director of the Department of Concerts and Lectures as ex officio members. Roy Schuessler was named chairman of the Committee, which was charged with the responsibility of promoting cultural awareness on campus and of developing policies relating cultural activities to the educational aims of the University.

Several new programs were initiated during the biennium. A Contemporary Music Series with the Department of Music was established to present local and outside musical groups playing new and contemporary music. Special funding of \$5,000 annually is provided by the University. The Conductors' Coffee Chats were begun in cooperation with the Minnesota Orchestra. Under this program five visiting conductors and the two regular conductors talked with University students on stage after final dress rehearsals. Two dance residencies, Alwin Nikolais and Jose Limon, were presented by the Department for the first time, each for three days of workshops, master lessons, and performances. These were presented in conjunction with the Minnesota State Arts Council, and a third of the funding was received from the National Endowment for the Arts.

A new orchestra and recital shell was installed in Northrop Auditorium during 1969. All rigging was replaced, an acoustical canopy was projected into the auditorium, and 48 theatrical spotlights for front and side lighting were added to the stage's equipment. These installations greatly enhanced the possibilities for presentation of ballet, theatre, modern dance, and opera. Expenses for the renovation will be recovered by a levy of \$.10 per seat on tickets for all performances in the auditorium.

A more liberal administration policy on use of University facilities by community groups led to wider programming in Northrop Auditorium during the biennium. Civic cultural groups have been afforded the use of the University facilities, and cooperative presentations of programs such as the Pillsbury Cen-

ennial Scholar Lecture by the Honorable Hubert H. Humphrey have been made possible. The outside groups pay all out-of-pocket costs incurred by their programs.

The auditorium was also made available on short notice for student gatherings during the spring anti-war activities. There was no excessive demand on staff time, the expense incurred was minimal, and no damages resulted to the facility.

Artists Course—In 1968-1969 the University Artists Course celebrated the fiftieth anniversary of its existence and the twenty-fifth year under James Lombard's direction. It was a year of gala presentations of many of the top individual artists and groups who had appeared in previous seasons under Mr. Lombard's management. The Masterpiece and the Celebrity Series were well received by the public and proved a fitting conclusion to Mr. Lombard's tenure. Masterpiece Series attendance averaged 4,275 for eight events, and Celebrity Series attendance averaged 3,808 for five performances. Despite the excellent attendance, however, the total operation of the Artists Course for 1968-1969 resulted in a deficit of \$15,909.00, depleting the \$9,730.46 reserve account of July 1, 1968, and ending the season with an overdraft of \$6,165.71.

A change in programming was seen to be in order for the 1969-1970 Masterpiece Series, since the previous year had exhausted most of the top performers. It was decided to present artists of equal stature who had not previously appeared in the Artists Course. Similarly, in the Celebrity Series a season that included theatre performances, modern dance residencies, and some folk and popular entertainment was planned. These were designed to bring new facets of the arts to the campus and to appeal more to students. The result was a number of artistic successes and financial failures. The average attendance for the 1969-1970 Masterpiece Series was 2,721 and for the Celebrity Series 1,934.

The conclusions to be drawn from this year were that the regular patrons of the Masterpiece Series did not respond to artists who were in some cases unfamiliar to them, in spite of the fact that many have international reputations. Older patrons apparently preferred to hear the same familiar artists year after year. Many of the patrons could not envisage theatre being played in the large auditorium, and sales for these presentations were very limited.

It should also be pointed out that the 1969-1970 season marked a low point nationally in concert-going, particularly in the area of vocal and instrumental classical recitals. This kind of programming had traditionally been the backbone of university concert offerings, and attendance had begun to diminish in 1965. Despite lower attendance at classical recitals, the fees demanded for the artists have in many cases doubled during the past six years and are still rising.

One disturbing aspect of the 1969-1970 season was that events cosponsored by the Department and student groups—Welcome Week, Homecoming, and Greek Week, for instance—were all deficit operations. The cancellation of the Greek Week band the day before performance, necessitating a last-minute substitution, resulted in a \$4,000 loss. In the past the Department has underwritten any loss and shared half of any profits with the cosponsoring student group. As a result of the financial losses incurred, the cosponsorship with student groups has been under discussion with the Office of Student Affairs. If such programs are to continue, they may have to be presented under a different arrangement.

At the conclusion of the 1969-1970 season, the Masterpiece Series, Celebrity Series, and Special Events produced a total deficit of \$59,058.01.

To stabilize the Artists Course and to reduce the possibility of future deficit, several changes in planning were made for the 1970-1971 season. The Masterpiece Series will offer only six concerts, three of them by recognized and substantial artists. The Celebrity Series of popular and semi-classical presentations will be replaced with a World Dance Series of five presentations, as dance seems to be one of the areas in considerable demand as long as there is not an over-emphasis on modern dance. Special concerts will be curtailed and include only those attractions with enough appeal to ensure an audience. The duties of the assistant to the director will become primarily publicity and promotion, and a concentrated effort will be made to reach the students and faculty and to involve them as subscribers to the two series.

Convocations—Since it was created in 1969, the Campus Committee on Convocations and the Arts has selected the speakers and events for convocation pro-

grams. The University appropriates \$8,705 for Minneapolis convocations and \$3,000 for St. Paul programming. The St. Paul campus submits programs to the Committee for approval.

Emphasis has been given to speakers such as Paul Ehrlich and Ralph Nader who offer important knowledge and stimulation on current issues such as the population explosion and consumer protection. Also presented are leading figures in literature and the arts, science, and public affairs. Performances as well as lectures in the arts areas are included. All convocations are admission free and open to the public.

Special Lectures and Scientific Conferences—The University distributes funds to the various University departments to assist them with special lectures, symposia, and conferences. In most cases the Department of Concerts and Lectures contributes only a portion of the cost of such projects, providing honoraria, travel expenses, or publicity and promotional materials. These lectures and conferences are usually specialized, but occasionally the prominent figures invited by departments may be invited to give public lectures or convocations. During the biennium, 68 departments participated in this assistance program. Significant colloquia were presented by the Department of Psychology and the Center for Research in Human Learning with partial subsidies from these funds. Programs were cosponsored with 37 departments in 1968-1969, and 31 departments received partial assistance for their projects in 1969-1970.

A Regents' Professor lecture series was begun in 1969 with a lecture by Regents' Professor Herbert Feigl in Mayo Auditorium. This program will be continued in 1970-1971, with lectures by three other Regents' Professors planned.

The Department of Concerts and Lectures acts as a clearing house for the presentation of these programs by helping with space reservations, publicity and promotion, and business details.

Summer Session Entertainment—Traditionally the Department of Concerts and Lectures has programmed and presented entertainment during the Summer Session, with funding from the Summer Session office. Through 1968 the entertainment had primarily been drawn from University Program Service attractions that were touring colleges during the summer. In 1969 this plan was dropped and all entertainment was booked exclusively by Concerts and Lectures.

In 1969 and 1970, a variety of local and imported theatre, dance, and musical events were presented free to summer audiences. They were held in Northrop Auditorium and at various East and West Bank outdoor sites. Successful innovations were presentations by the Center Opera Company of Minneapolis, a four-night Urban Jazz Festival held on Northrop Plaza, and a six-event Blues Series presented outside on Northrop Plaza and Anderson Mall. Average attendance for Blues Series performances was 3,000 persons.

Prior to 1968, a part of the summer entertainment was the presentation of the Summer Session Orchestra at free concerts. This group, made up of members of the Minnesota Orchestra, was funded by the Summer Session and the concerts were presented by Concerts and Lectures. This arrangement was terminated after 1968. In its place the Summer Session contributed funds to the Minnesota Orchestra in return for free admittance of registered summer session students to the Friday Night Family Concerts in Northrop Auditorium.

Discussions are currently under way to establish a total Summer Festival program that coordinates the efforts of the Summer Session, Concerts and Lectures, the Minnesota Orchestra, the Music Department, and other University arts-related groups.

Metropolitan Opera—In 1969 and 1970, the twenty-fifth and twenty-sixth annual presentations of the Metropolitan Opera Association were sponsored by the University of Minnesota and the Minnesota Orchestral Association. Seven operas were presented each year in Northrop Auditorium.

In 1969, tickets were sold for 97.9 percent of capacity and in 1970, for 92 percent of capacity. The fee paid to the Metropolitan was \$42,000 per performance in 1969, and \$45,000 per performance in 1970. The total operation in 1969 virtually broke even, with a deficit of \$6,000 in operating expenses that was regained by the interest on the reserve fund from the previous year. In 1970 there was a net total deficit of \$38,266, which brought the reserve fund from \$114,450 to \$78,750. Although the number of guarantors rose to a record

753 in 1970 and prices were raised to a \$16 maximum, it was impossible to avoid a deficit. The break-even point would have been approached if the operas had sold out 100 percent.

The 3 percent Minnesota sales tax instituted in 1969 and the 3 percent Minneapolis entertainment tax added in 1970 imposed further difficulties in attempting to meet expenses. The combined state and city tax for the 1970 Metropolitan Opera presentation was \$19,198.48.

The Metropolitan fees will be \$48,000 per performance in 1971 and \$51,360 per performance in 1972. Costs are rising proportionately for printing, publicity, stagehands, and other elements of presentation and production. Continued presentation of the Metropolitan Opera will be dependent on higher ticket prices, sale of 100 percent of the seats, increased guarantors' fees, and other fund-raising plans such as a broad-based "Friends of the Opera" Fund.

Opera patronage by those outside the five-county metropolitan area remained constant during the biennium, but ticket sales to patrons within the metropolitan area diminished by 30 percent in 1970. Every effort will have to be made to regain the metropolitan area patrons.

University of Minnesota Program Service—Operating as a cooperative venture with elementary schools, high schools, colleges, and universities of the area, the Program Service attempts to bring the best possible assembly and convocation programs to these schools at the lowest possible price. The operational objective of the Program Service is to secure lecturers, lecture demonstrations, musicians, entertainers, and theatre and dance presentations on a weekly contractual basis and deliver them on a per performance basis. For the greatest possible economy, the longest possible full-schedule tours are organized and sold to schools.

Although figures for the biennium reflect a healthy financial condition, the Program Service operates on such a close margin that cancellations caused by weather can be devastating. Also, school consolidations and crowded class schedules have a tendency to reduce the number of audiences. But even with tight money and limited budgets, billing of programs increased slightly during the biennium, and the general trend is toward purchase of larger productions and more costly programs.

A brief summary of operations for the biennium is as follows:

	1968-1969	1969-1970
Number of programs presented	2,464	2,584
Estimated attendance	1,500,000	1,500,000
Total receipts	\$171,995.66	\$177,100.69

The Program Service office also handles arrangements for off-campus appearances by Music Department groups, including the band, orchestra, and chorus. These concerts were minimal in the past, but they have increased greatly in number. During the biennium arrangements were made for 75 such concerts, creating a decided drain on the staff and resources of the Program Service.

Recommendations and Needs—The efficiency and effectiveness of the Northrop Auditorium stage would be greatly increased if the stage could be extended 20 feet in depth. This would provide needed storage area, heighten the possibilities of staging by large companies such as ballet and opera, and make possible additional dressing rooms at stage level. At present there is only the stars' dressing room at the right of the stage. Also, the greatest inconvenience to performing groups appearing in Northrop Auditorium is the lack of showers in or near the dressing rooms. Bathing facilities in the second- and third-floor dressing rooms on either side of the building would eliminate the constant complaints.

Arrangements made by the Program Service for off-campus Music Department appearances were absorbed by the staff without serious difficulty when only five or six concerts were involved. However, the same number of staff members had to deal with the 75 concerts presented during the past biennium. Arrangements for each concert require numerous telephone calls, cross-voucher-

ing, check requisitioning, and follow-up procedures. Additional office help is needed for peak periods, usually in the spring. It is also recommended that some budget allocation be made to the Department of Concerts and Lectures in compensation for this service to the Music Department.

The money allocated by the University to special lectures and scientific conferences provides needed assistance to University departments. If this allotment, currently \$5,011, could be increased, more departments could be assisted and certain significant projects could be more broadly supported. Funds currently available to the departments are generally between \$100 and \$400.

DEPARTMENT OF CRIMINAL JUSTICE STUDIES

David A. Ward, *Chairman*

The Criminal Justice Studies Department was established to encourage research and teaching in an area of great concern in American society. It has become clear that in order to understand and deal with the issues of "crime in the streets" and "law and order," one must know not only about social, psychological, biological, and other causative factors, but also the manner in which the criminal justice system works to select certain persons for punitive sanctions (also called "treatment" or "rehabilitation") and what the impact of this sanctioning process is upon the offender and the community at large. The proliferation of University courses in philosophy of law, sociology of law, anthropology of law, and psychology of law and the development of new courses in the criminology and criminal law area testify to the growing awareness that this country's legal system has become a matter of substantial interest to faculty and students. Legal scholars, philosophers, political scientists, and historians have a stake in examinations of the criminal justice area along with the disciplines mentioned above. Further, because minority group members are so overrepresented in crime statistics, it is clear that scholars in the Afro-American and American Indian Studies areas have a contribution to make in the pursuit of knowledge about the nature of crime and its correctional control. The Department of Criminal Justice Studies is thus intended to be a program that utilizes courses and faculty members from a variety of disciplines to focus attention upon an area of legitimate academic inquiry.

Course Offerings—The Department offers an interdisciplinary program designed to permit students to specialize in criminal justice studies. By completing the core requirements of the program, students may earn a "Specialization" in conjunction with a two-year A.L.A. degree, a four-year B.A. degree in the College of Liberal Arts, a four-year B.S. degree in the University College, or a two-year A.A. degree in the General College. The core requirements, first offered in September 1969, comprise 20 credit-hours in a variety of areas, including 6 hours in *The Role of Police in Urban America*, 8 hours in law, 3 hours in sociology, and 3 hours in specified elective courses from Afro-American studies, American Indian studies, anthropology, criminal justice studies, family studies, history, philosophy, political science, psychology, social science, and sociology.

Administration and Organization—The Criminal Justice Studies Department is funded as part of the regular budget of the University, and, at present, is administratively responsible to the vice president for academic administration. Application has been made, however, for departmental status in the College of Liberal Arts.

The Criminal Justice Studies faculty is drawn from existing departments and schools and, in all cases but one whose area is no longer an undergraduate major at the University, have their primary appointments in those other departments. No person is appointed to the Department of Criminal Justice Studies unless the appropriate academic department or school has first agreed to appoint that person to its faculty. Regular departments and schools also make the primary decisions on faculty promotion and retention, and new course offerings are approved by the relevant CLA department before submission to the divisional council.

A departmental committee is responsible for approving all Criminal Justice Studies policy and program matters. Up to the 1970-1971 academic year, the

Criminal Justice Studies faculty committee members have been Frank Benson, assistant dean of the General College; John P. Clark, professor of sociology; Eugene Eidenberg, associate professor of political science; Joseph M. Livermore, associate professor of law; Fred E. Lukermann, assistant vice president for academic administration (ex officio); Carl Malmquist, professor of child development, director of the Division of Child Psychiatry, and adjunct professor of law; Raymond T. Galvin, associate professor of criminal justice studies; E. Adamson Hoebel, Regents' professor of anthropology; Samuel Krislov, professor and chairman of the Department of Political Science; Paul E. Meehl, Regents' professor of psychology and adjunct professor of law; David A. Ward (chairman), professor of sociology; Robert D. Wirt, professor of psychology; and students David Couper, Ph.D. candidate in sociology; Jack Jensen, B.A. candidate in sociology; and Asa Patrick, B.A. candidate in Afro-American Studies.

Community Activities—In July 1969, the Criminal Justice Studies Department sponsored a series of summer symposia, dealing with critical issues in law enforcement. These symposia brought nationally recognized experts and several hundred representatives of Minnesota law enforcement agencies to the campus. Topics included the threat of organized crime in Minnesota, training and education of professional police officers, problems in police administration, and police-community relations. Conference proceedings were recorded to make the discussions available to all criminal justice agencies in the Upper Midwest.

The Department also developed a special program of University courses to be offered at the Bryant Avenue Precinct Station of the Minneapolis Police Department. The third course in the program, which utilizes experienced senior faculty members from various academic departments, is now under way. Some 70 Minneapolis police officers and 30 citizens from the Model Cities program have enrolled in the courses, which represent an effort to bring the University to the community and to encourage people to enroll in regular University programs. The success of this program is evidenced by the fact that police officers, once critical of the University and University education, are now encouraging their fellow officers to take a second round of courses to begin in winter 1971. This program is regarded by the Minneapolis Police Department as a most successful educational effort.

Research Activities—It is intended that the Department of Criminal Justice Studies function as a vehicle for encouraging interdisciplinary research, a function that is in the process of development. At present there are no research projects funded through the Department. However, the Department has been asked by the Criminal Justice Advisory Committee for the Metropolitan Council to evaluate several projects funded through the State Crime Commission under the Safe Streets and Crime Control Act.

Guest Lecturers—The Department brought several lecturers to the campus during the biennium for presentations in class seminars and for appearances at the Law and Society Association. These lecturers included Harcourt Dodds, deputy commissioner, Police Review Board, New York City Police Department; Professor Marvin Wolfgang, research codirector of the President's Commission on the Causes and Prevention of Violence; and John Gardner, chief of research evaluation and planning, Law Enforcement Assistance Administration, U.S. Department of Justice.

Financial Assistance for Students—During the 1969-1970 academic year, four scholarships of \$500 each, made available through the Harold Pond Scholarship Fund, were granted to students in Criminal Justice Studies. Funds were also received from the Law Enforcement Assistance Administration to provide scholarships and loans for in-service police officers and for students considering careers in law enforcement and criminal justice agencies. In 1969-1970, \$133,000 in grant and loan money was received from this source, and approximately 400 in-service and pre-service students have thus far received assistance.

SCHOOL OF DENTISTRY

Erwin M. Schaffer, *Dean*

The 1968-1970 biennium in the School of Dentistry was marked by curricular revisions, marked expansion and innovations in the auxiliary personnel

training programs, enrollment increases, research progress, and intensive planning for new facilities and major curricular changes. State funds were approved by the 1969 Legislature for Unit A of the Phase I health sciences construction program. A federal construction grant for Unit A, which includes new dental facilities, was approved in December 1969, and possibly will be funded by December 1970. Construction should begin soon after that date and be completed by fall 1973.

Organization and Administration—The administrative team was strengthened by the addition of an assistant dean for academic affairs. Dr. J. R. Jensen, who was appointed to this new position in December 1969, has principal responsibilities in curricular developments and auxiliary personnel training programs. The previous single position of assistant dean was retitled assistant dean for institutional and student affairs.

In May 1970, the oral biology program was formed as an organizational division to promote and coordinate interdisciplinary research and teaching from a strong biological base. In addition to relating the basic sciences to clinical practice for the undergraduate curriculum, the division has developed core courses for graduate students, carried out an active research program, and made plans for a Ph.D. program in oral biology.

There was a substantial reorganization in the oral diagnosis teaching program. Changes were made to provide better screening of patients for educational suitability, more effective treatment planning, expansion of the radiology program, and greater emphasis on clinical oral pathology and medicine.

Admission Requirements—In 1966, it was announced that a minimum of two years of liberal arts pre dental study was still acceptable for admission to the D.D.S. program, but preference would be given to applicants with three or more years beginning fall 1967 and with more emphasis in fall 1968 and thereafter. The result of this change has been a steady increase in the percentage of entering students with three or more years of liberal arts study: 55 percent in 1967, 76 percent in 1968, and 81 percent in 1969. Pre dental academic performance of accepted students also continued to improve.

Curriculum and Enrollment

Dental Hygiene—The graduating class in dental hygiene increased from 39 in 1968 to 52 in 1970, an increase due partially to an increase in the entering class size but also to a lower attrition rate. The bachelor's degree program to train desperately needed dental hygiene teachers for statewide programs was begun in fall 1968 and now has 20 enrolled. A survey was made throughout Minnesota to identify dental hygiene graduates not active in dental hygiene careers. The 273 contacted were encouraged to become active and were advised that retraining was available. An evening refresher training program to bring the older women back into dental hygiene practice was initiated and proved successful. Some 25 dental hygienists resumed active careers in the past two years as a result of the survey and retraining course. A new program was launched to teach additional clinical duties to dental hygienists, enabling dentists to provide more care for their patients.

Dental Assisting—Training of more dental assistants is essential to meet existing and future demands for these valuable personnel. One of the roadblocks to expanding the training programs throughout Minnesota is the serious lack of dental assisting educators. To alleviate the shortage, a teacher training program in dental assisting was begun in fall 1968. Seven women are now enrolled. A major change in the dental assisting curriculum is the assignment of more duties to dental assistants. This change is consistent with the new Minnesota Dental Practice Act, which allows extension of more clinical and assisting tasks to dental auxiliary personnel.

D.D.S. Program—Scheduling changes were made throughout the four-year D.D.S. curriculum to place the courses in better sequence and to better integrate the basic sciences with the dental courses. Time allotments to some courses were reduced to permit introduction of elective and selective courses. For example, selectives in the Division of Health Ecology include health care delivery systems, community health, rural health, public communication, health problems of minorities, and current problems in changing health programs.

A teaching program in gerodontics, the study of special dental considerations of the aged, was begun, as was a coordinated teaching program in occlusion that continues through the four-year curriculum. Patient admissions and oral diagnosis procedures were reorganized to more fully emphasize oral diagnosis and its relationship with oral medicine. Oral surgery course offerings were revised substantially in both sequence and content, and redesigned course offerings in prosthodontics permit students to pursue special interests in this field.

Sound and slide synchronized and printed self-teaching materials are being developed for patient education as well as dental student education. The patient-oriented material, intended to supplement the efforts of dentists and dental auxiliaries in clinical and technical procedures, oral hygiene education, and patient motivation, should have implications in the area of dental care delivery. Controlled investigations of the effectiveness of these teaching methods are being conducted with dental students and dental patients. Planning was completed for a new teaching approach for the preclinical and clinical courses in pediatric dentistry, featuring more Socratic teaching, electives in hospital dentistry and community health projects, increased clinical experiences, and utilization of self-teaching systems. The teaching of periodontics was improved through implementation of a lecture-seminar, preclinical, and clinical sequence throughout the four-year curriculum. With the increased interest in use of dental auxiliaries and the recent legal changes allowing them additional duties, the clinical program in operative dentistry was changed to give students increased opportunities to work with and direct dental auxiliaries.

During 1969-1970 the Curriculum Committee worked with a comparable committee in the Medical School to develop joint courses for dental students and medical students. The first course in community health will be offered in fall 1970, presenting to dental students a total health care delivery concept rather than the limited vision of oral health care.

Graduate Program—A graduate program leading to a Ph.D. in genetics, the only such program in the United States, was instituted for students of orofacial development and hereditary diseases. Six graduate students are currently enrolled.

Graduate programs have grown in oral surgery, prosthodontics, periodontology, endodontics, and pediatric dentistry. The number of graduate students increased by about 15 percent from 1968 to 1970. In each of the past two years, more than 20 students were enrolled in the Ph.D. training program.

Research Efforts—Despite diminishing availability of federal and nonfederal research funds, dentistry research and research-training grants during the biennium increased in number over the awards of the 1966-1968 biennium. In 1967-1968, federal and nonfederal research and research-training funds totaled \$586,714. This figure increased to \$668,940 in 1968-1969 and \$745,114 in 1969-1970. In addition, research efforts were aided by improvement grant funds of \$273,332 in 1968-1969 and \$432,263 in 1969-1970. These funds are primarily for teaching, but teachers hired under the grants conduct some research, and certain innovative programs supported by the grants have investigative features.

The School of Dentistry's research program has been productive. At the 1969 meeting of the International Association for Dental Research, 24 papers were presented by Minnesota people. Twenty-six papers were given at the 1970 I.A.D.R. meeting. Faculty members also gave numerous research papers at many other scientific meetings in the United States and foreign countries during the biennium.

Specific projects during the biennium included the following:

Developmental Mechanisms in Calcified Tissues—A major effort has been directed toward identifying changes in chemical composition and physical properties of cartilage metabolism during its calcification, focusing on identification of factors that initiate and control calcification. The data obtained are extremely important as baseline information in problems of mineralization and calcified tissue destruction. Clinical problems such as tooth development, dental caries, alveolar destruction in periodontal disease, aging, and bone loss associated with intrajaw lesions depend on answers to these questions for their ultimate understanding and rational treatment.

Dental Caries—Research was initiated in the microbiology research laboratories dealing with sugar metabolism in cariogenic microorganisms. Although the role of various bacterial strains in the formation of dental caries by the utilization of dietary sugars has been clearly demonstrated, little is known about the exact metabolic processes involved. The data obtained in these studies are being used to evaluate features unique to the cariogenic flora that might be useful in testing potential anticariogenic compounds.

Speech Problems—Research on speech problems was conducted by a team of speech pathologists, oral surgeons, and dentists for clinical disorders in orally malformed children. Basic research into palatal function in phonation was aided by development of a transducer device for recording palatal movements in phonation.

Palatal Development—Histochemical, biochemical, electronmicrographic, and organ culture studies of palatal development in experimental animals were begun. Some early key oxidative enzyme changes in embryonic epithelium preceding normal palate development were demonstrated.

Malocclusion and Bone Deformity Studies—Research in this area included studies of rapid expansion movement of facial bones under high sustained loads for correction of skeletal discrepancies, clinical studies of the management of coordinated oral surgical-orthodontic treatment of gross facial anomalies, and studies of the treatment of facial development concurrent with orthopedic treatment of scoliosis.

Blood Circulation Studies—The circulation of teeth and supporting structures was studied, using indirect methods for measuring blood flow that were evaluated by analog and digital computers. The technique of fiberoptic densitometry was applied to problems of blood flow regulation and to scan autoradiographs obtained on the circulation studies. External monitoring techniques were evaluated and utilized to quantitate regional blood flow in experimental animals and patients.

Protein Changes with Aging—The steps by which proteins build up and tear down have been worked out and the control mechanisms of the cycle discovered. This cycle is involved in aging, with a net gain in protein during infancy and childhood, a balance between protein synthesis and destruction in adulthood, and an increase in destruction in old age. The process possibly involves tissue loss through periodontal disease as well as growth in general. In contrast to what has been thought, protein breakdown in this cycle can begin within the protein molecule rather than only at the ends; the enzyme that does this is being isolated. Experiments in rats to control this cycle, with possible extension of life span, are under way. Pilot studies indicate that the treated rats survive longer.

Joint Disorders and Facial Pain—In-depth clinical studies were conducted to correlate clinical systems of the temporomandibular disorders and facial pain. The data are now being compiled and programmed for computers to obtain correlations between objective clinical symptoms and stomatognathic disorders.

Student Evaluation—Methods are being developed for use of the computer in clinical evaluation of dental students. This program, an integral part of the dental school's effort to provide a flexible curriculum that considers interest variability, previous educational experiences, and ability to learn, also represents a critical examination of evaluation procedures.

Cleft Palate-Maxillofacial Program—This valuable service, teaching, and research program in the School of Dentistry continued to grow in the last biennium. The director became a full-time faculty member, diagnostic clinic sessions doubled, and a full-time speech pathologist was added to the staff. The consulting staff is composed of representatives from many health disciplines: pediatrics, plastic surgery, orthodontics, prosthodontics, pedodontics, speech, and psychiatry. During the biennium, 81 new patients were accepted, bringing the case load to 608. These patients came from 165 different communities in Minnesota plus several other states. The educational activities of the cleft palate-maxillofacial clinic included annual two-day postgraduate courses that attracted dentists from all over the country, hospital in-training courses, graduate seminar

courses, and lectures to undergraduate dental students and dental hygienists. The clinic is the training ground for graduate students in dentistry and speech pathology.

Community Programs—Students and faculty were involved during the biennium in rendering dental care in the evenings to indigents at the St. Paul Union Gospel Mission. Dental, dental hygiene, and graduate students participated in Project Headstart, giving dental health education lessons and conducting dental screening examinations. In cooperation with the Minneapolis Department of Health and the Model Neighborhood Program, dental students carried out 205 home interviews with elderly residents to determine social and health problems and needs. In this project, students gained experience in communicating with elderly persons from a variety of socio-economic and racial groups, and the data collected were of value to the Model Neighborhood Committee.

A major dental health manpower problem in Minnesota is the unequal geographical distribution of dentists in rural and urban areas. The Division of Health Ecology conducts a summer program in which several dental students live in a Minnesota rural community for one to three weeks under the tutelage of a local host dentist. The purpose of the program is to expose dental students to the advantages of rural practice, to encourage participation in community dentistry activities, and to increase students' understanding of rural community interaction.

Foreign Exchange Programs—In the International Dental Student Exchange Program between the University of Minnesota School of Dentistry and San Carlos University in Guatemala, eight Guatemalan dental students spent two months at Minnesota in fall 1969 studying dental education methods. Four Minnesota students spent two months in Guatemala in summer 1970 doing research and providing dental treatment in Indian villages.

During the biennium, three School of Dentistry faculty members served as consultants in Saigon, South Vietnam, under the auspices of the U.S. Agency for International Development. Seven members of the University of Saigon School of Dentistry faculty came to Minnesota in summer 1969 to observe teaching methods and to attend lectures, seminars, and demonstrations in preclinical and clinical disciplines.

Faculty Publications—The faculty has published approximately 225 articles in journals, chapters in textbooks, abstracts, and special papers during the biennium. Several faculty members were also involved in publication of two major textbooks in 1970.

Visiting Professorship in the Health Sciences—In 1967, the University of Minnesota received a bequest from the Helen Lasby Jeffrey estate to support a visiting professorship in the health sciences. The late Mrs. Jeffrey was the daughter of Dr. W. F. Lasby, dean of the School of Dentistry from 1927 to 1945. This fund supports on a rotating annual basis a distinguished foreign or American health science scholar. The first visiting professor in 1968-1969 was Jan E. Jirasek, M.D., a human embryologist and obstetrician from Prague, Czechoslovakia, who contributed substantially to the teaching and research program in human development and malformations. In 1969-1970, the Lasby professor was J. Rennie Porteous, M.D.S., B.D.S., a pediatric dentist from the University of Newcastle-upon-Tyne in England. Dr. Porteous participated actively in numerous projects in health ecology and pediatric dentistry. The 1970-1971 Lasby professor, selected in January 1970, will be Dr. Robert Harris, a nutritional biochemist from the Massachusetts Institute of Technology.

Visiting Faculty and Lecturers—The School of Dentistry was privileged to have a number of other distinguished visiting foreign and American full-time teachers and special lecturers during the biennium. Included were John Lewis, D.D.S., prosthodontist from the University of Western Australia in Perth, Australia; Jon Marrink, Ph.D., biochemist from the University of Groningen in the Netherlands; Kalevi Koski, D.D.S., lecturer from the Dental Institute in Turku, Finland; Willy Krogh-Poulsen, D.D.S., lecturer from Copenhagen, Denmark; Jens Waerhaug, D.D.S., lecturer from Oslo, Norway; Clifton Dummett, D.D.S., lecturer from the University of Southern California; Thomas Barber, D.D.S., lec-

turer from the University of Illinois; and William Solberg, D.D.S., lecturer from the University of California at Los Angeles.

Problems, Needs, and Plans—The primary aim of the School of Dentistry is to make a major contribution to dental disease prevention and to ensure widespread, high quality oral health service for the public. To accomplish these goals, more faculty and staff and expanded and up-to-date facilities are needed to permit increased enrollments and development of innovative teaching and research programs. Current facilities are crowded and outmoded. Intensive planning of new facilities has been carried on since 1964; it is hoped that construction funds will be available soon.

New faculty positions and additional Civil Service help are needed even to maintain the status quo. Most critical Civil Service needs are for secretaries, dental assistants, clerks, custodial workers, and laboratory workers. The dental clinics cannot be kept clean because of insufficient Civil Service help.

As the dental education program becomes more complex and diversified, greater efficiency is absolutely essential. New personnel are essential to the exemplary clinical care that makes possible retention of sufficient numbers of patients for educational needs. With the increased use of third-party payments, competition for patients will become even keener.

Within the School of Dentistry, immediate and long-range plans are to move ahead in enrollment, research and research training, clinical teaching programs, development of new methods of oral health care delivery and increased use of dental auxiliaries, expansion of continuing education offerings, advancement of hospital dental programs, and community service.

COLLEGE OF EDUCATION

Robert J. Keller, *Dean*

During the 1968-1970 biennium the College of Education experienced pressures and needs that taxed its resources heavily. The period was one of controlled expansion, scrutiny of the College's mission, consolidation of structural organization, and considerable transition.

Although the College had for several years been engaged in discussions of controlled growth, the issue of whether it should accommodate increasing numbers of applicants, particularly those admitted through other colleges within the University, reached crisis stage due to limitations in space, facilities, staff, and student-teaching opportunities in the public schools. Policies were developed and established to limit enrollment in fields such as elementary education and certain majors in secondary education. A drastic limitation seeking to reduce enrollments by 50 percent over a three-year period was adopted in elementary education; smaller reduction was planned in social studies and English-speech education at the secondary level beginning fall 1970. The sudden shift in the supply and demand situation, in which an undersupply of teachers was translated into an apparent oversupply in many fields, also influenced these decisions. Other fields are in the process of studying their situations and further policy changes are anticipated.

Admissions and retention problems also stimulated serious questions about the mission or purpose of the College of Education. Questions were raised by the faculty about the adequacy of the College Mission Statement adopted in 1965. The Policy and Planning Committee of the College formulated guidelines to aid in educational planning and to stimulate departments and programs to review their functions and develop mission statements of their own. Several departments made considerable progress along these lines during the biennium. Some moved to translate mission statements into priorities and needs to support building proposals and staff requests. A major long-range planning effort growing out of the deliberations of the Policy and Planning Committee was initiated during the last few months of the biennium.

Some of the changes noted in the 1968-1970 biennium were the result of successful efforts to secure funds from non-University sources for ongoing programs, experimental programs, and research activities. The Institute of Child Development moved into the two-story addition to the Child Development building constructed with a \$207,000 grant from the National Institutes of

Health and \$217,000 in Institute endowment funds. The College secured an additional \$1.6 million for expenditure in 1968-1969 and approximately \$3 million in 1969-1970. These funds, mostly from federal sources, made possible needed expansion of training and research programs. In the next biennium the College faces the beginning of a tightening of fellowship funds.

A major problem in both securing and utilizing external funds has been the continuing critical shortage of adequate space and facilities. The College has been in a crisis stage on these matters for a number of years, and now faces a situation in which virtually no discretionary space is available for departmental expansion or experimentation with new and improved programs.

The move of the Bureau of Recommendations off campus in fall 1968, while not in the best interest of making its services available to students, helped free space in Burton Hall. A further effort in this direction was the move of the entire Division of Educational Administration to the St. Paul campus. The continuing dispersion of units in an effort to "make-do" with available space presents serious problems of communication among these units.

Organization and Administration—Steps taken in earlier years to develop an improved organizational structure were advanced during the biennium. Several departments were combined to establish a broader divisional structure that would consolidate programs and provide an intermediate link between departments and the Office of the Dean. The faculty had approved the establishment of eight divisions, two councils, and an Administrative Committee for the College in June 1968. Formalization of six of the eight divisions, the two councils, and the Administrative Committee was implemented during the 1968-1970 biennium.

This reorganization recognized the Council of Teacher Education, the Council of Graduate Education and Research, the Administrative Committee, and the following six divisions: Educational Administration, Educational Psychology, Elementary Education, the Institute of Child Development, the School of Physical Education, and Vocational and Technical Education. However, reorganization was not yet complete at the close of the biennium. Still under study was the appropriate placement of Social-Philosophic Foundations, Higher Education, Secondary Education, Art Education, Music Education, and Clinical Experiences. Recommendations for further divisional organization are expected in the near future.

Creation of the Council on Teacher Education established an all-College policy and evaluation structure with responsibility for programs of teacher education at pre-service or in-service levels in all fields. The Council on Graduate Education and Research is a coordinating structure for all graduate programs and a means for focusing College-wide attention on the research function.

The Administrative Committee, with membership consisting of divisional chairmen and heads of supporting all-College units, serves as a mechanism for communication and implementation of College policies. The Policy and Planning Committee, a College-wide committee of elected faculty members, continues to provide consultation and advisory service to both College administrators and the faculty.

Administrative Changes—The request of Dean Robert J. Keller in July 1969 to be relieved of his deanship responsibilities no later than the summer of 1970 resulted in the appointment of a Deanship Search Committee by President Moos early in fall 1969. This Committee made an intensive nationwide search and recommended to President Moos three possible candidates. He, in turn, recommended the appointment of Jack C. Merwin, assistant dean and professor of educational psychology, to succeed Dean Keller, a recommendation confirmed by the Board of Regents on June 13, 1970, for a term beginning July 1, 1970. Subsequent appointment was made of William E. Gardner to replace Marcia Edwards as associate dean at her retirement. At the close of the 1969-1970 academic year, Frank Wilderson, assistant dean for urban education, returned from leave, completing the Dean's Office staff with the exception of two positions—the assistant deanship posts vacated by Deans Merwin and Gardner. At the end of the biennium steps were being taken to fill these positions.

The changes in administration of the College were accompanied by several shifts in departmental chairmanships and by appointment of chairmen for the newly created divisions. (See "University Personnel" section of this book.)

New or Changed Organizational Units—The State Research Coordinating Unit, which had been initiated with federal funds on a limited and tentative basis, was moved during the biennium to the Division of Vocational and Technical Education. Now firmly established as a separately supported research center under contract with the Minnesota State Department of Education, it provides research opportunities and support for training development activities for all departments within the Division.

Another major research unit added during the biennium was the federally funded Research and Development Center for the Handicapped. This Center is operated through the Department of Special Education and incorporates research activities of the Department of Speech Science, Pathology, and Audiology.

The Psycho-Educational Center was also formally established during the biennium on recommendation of a policy committee appointed by Dean Keller in 1967. It was formed by merging the activities of the Psycho-Educational Clinic and the Child Study Clinic. The rapidly developing program of the Center involves training activities for units outside the College as well as within.

In the fall of 1968, Marshall-University High School came into being. The merging of programs, faculty, students, and facilities to strengthen and improve the operation of both high schools represented a major organizational change for the College. With many of the problems of putting the merged program into operation behind it, the school moves into the new biennium under a new director, with a promising future for serving the needs of its students, the Minneapolis school system, and the College.

A Center for Community School Education was planned during the biennium, and implementation during 1970-1971 is anticipated.

Changes in Enrollment Patterns—The changing nature of enrollment in the College posed both problems and opportunities for the future. An overview of College-wide changes over the decade ending with the 1968-1970 biennium reveals a profound shift with direct implications for program and staffing.

Over the ten-year period, fall enrollment of graduate and undergraduate education students increased by 1,123, from 3,440 in 1959-1960 to 4,563 in 1969-1970. Of the 4,563, however, only 194 (4.3 percent) were freshmen and sophomores, a dramatic decrease from the 740 (21.5 percent) a decade earlier. The number of junior and senior students increased by 911, comprising 59.4 percent of the 1969-1970 total as compared to 52.3 percent of the 1959-1960 total. The number of adult special enrollees increased from 300 in 1959-1960 to 400 in 1969-1970.

A most significant shift emerges from analysis of graduate enrollments. The enrollment of 600 in 1959-1960 had more than doubled to 1,258 by 1969-1970, an increase from 17.5 to 27.6 percent of students enrolled in education.

During the decade, then, the College of Education has gradually become an upper division and graduate college. This shift has created a need for specialized equipment and facilities, flexible teaching spaces, and a specialized faculty. Simultaneously, the College has moved toward extension of efforts to develop and provide new programs for special groups such as disadvantaged and minority groups and efforts to train educational personnel to work with them. It has also become evident that the College must continue to assess its role in preparation of other specialists, including teacher aids, personnel for the rapidly developing junior college system, and the ever-increasing number of educational specialists in industry.

It is obvious that all of the needs cannot be met by the present over-taxed personnel of the College. With an eye to the addition of personnel who can provide statewide leadership, cooperation with teacher-training institutions in the state has been strengthened in an attempt to meet state needs.

The biennium closed with the efforts to control enrollments in different fields in several stages of development. In the attempt to provide training in elementary education for all qualified applicants, limited faculty and facilities were taxed to the point where sorely needed research and graduate programs were severely curtailed. In 1969-1970, the three-year plan to reduce undergraduate elementary education enrollment from nearly 1,200 to 600 was implemented. Concurrently, secondary education implemented controls on those entering English and social studies programs, with an aim of overall controlled undergraduate enrollment of approximately 900. The demand in art education

during the biennium reached fifty percent above what was feasible for optimal effort, given available faculty and facilities. Procedures for control of enrollment in this area are being formulated.

Another major development that affects the enrollment picture of the College is the increasing attention to vocational and technical education. The establishment of new vocational-technical schools in the Twin Cities area and throughout the state has increased demands for specialized personnel to teach in and administer such programs and to counsel students who enter them.

Curricular Developments—During the biennium a schedule for systematic review of programs by the College Curriculum Committee was established and new guidelines for Master of Education programs were adopted. A number of experimental programs were undertaken and a few existing programs were consolidated or dropped.

Changes in Graduate Programs—Degree changes during 1968-1970 included new Ph.D. majors in physical education and in music with an emphasis on music education; new Ed.D. majors in physical education and in trade and industrial education; new M.Ed. programs in agricultural education, earth sciences, art education, music education, recreation and park administration, and home economics; and a new B.S. major in school and community health. The master's major in curriculum and instruction was replaced by program designations of elementary education and secondary education. New specialist certificate programs were initiated in the areas of business education, distributive education, mathematics education, and general curriculum supervision. A major program alteration for Ph.D. majors in education, educational psychology, educational administration, and child psychology was the deletion of the foreign language requirement.

An increase to about 40 Ph.D. candidates in special education reflects a systematic rise in fellowship support, now leveling out at about \$350,000, in this area. The Department of History and Philosophy of Education is being guided by what Swedish educational planners term "rolling reform"—program alterations based on continuous utilization of feedback from the field. The practicum experience for school specialists in the newly constituted Psycho-Educational Center is based on a unique interdisciplinary approach involving interaction with fellow students and faculty from several areas in interdisciplinary problem-solving. In a major effort to assist state school administrators in meeting continuing education needs and certification requirements, the Division of Educational Administration launched an extensive continuing education program. It includes a three-year plan for taking advanced graduate courses out into the state, an effort coordinated with two state colleges. A National Institute of Child Health and Human Development grant to the Institute of Child Development for the graduate training program in behavior and development of preschool children was renewed for a five-year period, totaling just over \$400,000. The Department of Counseling and Student Personnel Psychology completed a two-year experimental study on training of people without teaching experience for counseling positions in public schools.

Changes in Undergraduate Programs—Many innovations that were developed, tested, and, in some cases, adopted reflected attempts to meet pressing needs, make use of newly available technology, and put into practice new educational program approaches. Three general foci—preparing teachers to work with special groups, early involvement with school children, and new delivery systems—served as a basis for many of the changes.

Throughout the undergraduate programs, new emphasis was placed on training teachers to work with such specialized groups as the disadvantaged and the physically handicapped. In addition to special programs through involvement in the Training of Teacher Trainers (TTT) and Teacher Corps projects, most programs moved toward concern for this dimension in the preparation of teachers. For example, an experimental section of the foundation courses for secondary education students was conducted in an inner-city high school, and art education programs emphasized art as a vehicle for occupational therapy and rehabilitation of the handicapped and deprived.

A significant shift from the traditional ordering of didactic work followed by experience with children was in evidence in most programs. Most elementary education students took part in pre-student-teaching experiences such as observation-

participation, demonstration lessons, and micro-teaching during their first year of enrollment in the program. An experimental group of secondary students were in the classrooms of an inner-city school as early as their first quarter in the College, with very positive feedback on the experience from both the students and the teachers with whom they worked. In general, a school-based focus for preparing secondary teachers and a laboratory-oriented approach extending across the training period for elementary teacher trainees were given extensive study and trial during the biennium.

Many units in the College experimented with new delivery systems. Extensive use was made of videotaping of students in actual teaching situations as a basis for supervision. Also widespread was the use of micro-teaching, which involves education students in teaching experiences with small groups of pupils. The Department of Home Economics experimented with a teleconference approach to supervision that involved students, critic teachers, and supervisors in multi-connection telephone conferences on the experiences and problems of student teachers in different locations in the state. An individualized instruction approach for business education majors was under development, as was a program to allow a choice among five tracks of specialization for certification in music education. In vocational education, "single-concept" films were being prepared for use in training vocational teachers.

Greater Involvement with Secondary Schools—At the present time, approximately 60 percent of the College undergraduate programs utilize public school classrooms for pre-student-teaching experiences such as observation, participation, demonstration, and micro-teaching. Development of methods to make better use of the resources available at Marshall-University High School is continuing; the University's contribution to the operation of the school, the cost of that contribution, and methods for developing clinical professorships are under scrutiny. The Department of Clinical Experiences has responsibility for developing and operating inner-city student teaching programs. Four joint appointments in Minneapolis and St. Paul are currently operative. An experimental program in suburban areas has been initiated with the assignment of district coordinators to Richfield and Roseville. The "center" concept is under development also, with language arts and social studies centers expected to be in operation in the 1970-1971 school year.

Cooperative Efforts with the Community—The College has continued to work closely with the community in an attempt to solve educational problems at many levels: The Department of Elementary Education, in cooperation with the Minneapolis public schools, completed development of Project COMBINE, which focuses on the problems of teaching reading in inner-city schools in Minneapolis; Training of Teacher Trainers (TTT) cooperated with both Minneapolis and St. Paul in a program designed to improve the ability of teachers to cope with problems peculiar to the inner-city school; History and Philosophy of Education reached into the community to involve Afro-American, Indian, and Spanish populations; and the Psycho-Educational Center provided consultation services for the State Department of Education, the 3M Company, and other groups requiring special institutes. As demands on community agencies increase, it is anticipated that more cooperative effort will result as these agencies turn to the College for the expertise required to solve pressing educational and social problems.

Changes in Staffing—Shortages of well-qualified candidates in most educational specialties led to the filling of new and vacant positions on a temporary basis early in the biennium. This situation eased somewhat by the end of the two-year period and nationwide searches led to permanent appointments for most positions. While some losses had occurred, most of the appointments were made to fill new positions as the College continued its attempt to reach the full complement of staff needed to accomplish its mission. Retirements accounted for four faculty losses, and the continuing flow of attractive offers received by the faculty prompted several others to move to positions at other institutions. Including replacements, 44 new appointments at the rank of assistant professor or higher were made during the biennium.

Scholarly work and professional service activities were pursued by faculty through the use of single quarter leaves, sabbatical leaves, and leaves without pay. These leaves involved overseas service and the receipt of a variety of grants and awards. The project with the University of Paraná (Brazil) for preparation of

teachers of agriculture was terminated by mutual agreement with its sponsor, the Ford Foundation, in June 1969 after careful evaluation of complicating circumstances at the University of Paraná.

Research Activities—Research continued to receive strong emphasis in many departments during the biennium. Special Education established a Research and Development Center in spring 1969 following receipt of a support grant from the U.S. Office of Education. The Center was formally dedicated on June 5, 1970, with Senator Mondale, Congressman Quie, and USOE Associate Commissioner Edwin Martin attending. Close cooperation with the Department of Speech Science, Pathology, and Audiology helps to broaden the scope of the Center's research activities.

In History and Philosophy of Education, research activities were concentrated in the areas of social science, social philosophy, educational philosophy, and history of educational theory. The department will continue to serve as the institutional locus for the systematic, comprehensive, and continuing study of education from a historical, philosophical, and social perspective.

Fifteen research projects were proposed or funded in the Division of Educational Administration during the biennium. Noteworthy among these was a nationwide study of state aid distribution systems and the relationship of these systems to school district reorganization. Other research was conducted on behavioral change in school administrators, fiscal disparity in the Twin Cities metropolitan area, and knowledge premises needed by inner-city elementary school principals in making critical decisions.

Business Education personnel directed studies of a National Office and Business Education Learning System.

Higher Education faculty conducted research on verbal behavior as related to teacher-pupil interactions and the perceptions of high school students of the alternatives available to them in post-secondary institutions. *Minnesota Ph.D.'s Evaluate Their Training* was published during the biennium.

Research in the Institute of Child Development was many-faceted, with eight staff members holding awards for work in special interest areas. Among these projects were studies designed to develop strategies to aid in memorization of material, studies dealing with transposition behaviors in children from first through third grade, a study of social influence processes in childhood, and a study of individualized acts of violence. Faculty members and graduate students in several departments work together in the Center for Research in Human Learning, which is designed to stimulate and facilitate the conduct of research on problems of mutual interest. In addition to Institute staff members, the Center includes staff members from educational psychology, psychology, and speech science, pathology, and audiology. The research conducted here falls into such areas as psycholinguistics and language behavior, perception, memory, and verbal and motor learning and transfer. The completion of construction of the Institute building in September 1969 nearly doubled the space available to the Institute and increased the research potential for both faculty and students.

The Center for Curriculum Studies continued the administration of the Small Grants Program for educational research and development during the biennium. Total support for the program was \$110,000 over the two-year period. In 1968-1969 the Program received 81 proposals, of which 54 were supported; in 1969-1970, 148 proposals were received and 56 were supported. The average grant in 1968-1969 was \$1,118; in 1969-1970, it was \$1,140. Support grants fell into three groups: qualitative improvement of pedagogy, experimentation with and development of new models for undergraduate instruction, and introduction and evaluation of innovative methods and materials. Included was a grant for the Division of Educational Psychology and another for a pilot program in precollege curriculum development that was initiated by a committee made up largely of College of Education faculty. The Center also sponsored seminars in which grant recipients reported on their research.

A Center newsletter entitled *Comment* was launched in 1969. Topics covered included the Twin City TTT Project and in-depth studies of selected Small Grants Program projects.

In April 1969 a cooperative agreement between the Minnesota State Board for Vocational Education and the Regents provided for operation of a Research Coordinating Unit at the University to conduct research and to stimulate, facili-

tate, coordinate, disseminate, and encourage innovative and developmental efforts on behalf of the state's system of vocational education. The Unit has conducted studies to assess available research resources, determined its research priorities, provided consultation services and project proposal reviews, and sent copies of specially developed reports to its constituency. Research was undertaken on the use of micro-teaching and on the relationship between achievement in graduate school programs and prior academic achievement. A general model for measuring the effectiveness of post-high school programs was also designed.

Studies by the Bureau of Field Studies and Surveys ranged from a study of a small local school district to statewide comprehensive surveys for South Dakota and Minnesota. A new kind of educational problem was faced by the Bureau when it undertook a feasibility study on the cooperative establishment of an area vocational school by nine independent districts in Dakota County. Other nontraditional studies included one planning and evaluating an educational research and development council and another assessing student and parent involvement in program evaluation. Consultation services were provided to parochial schools and to teacher councils operating under local school boards. At the international level, plant planning assistance was provided for the Ministry of Education in Korea. A clinical experience seminar that integrates the role of the Bureau more fully with the instructional mission of the Division of Educational Administration was a recent development. Through the seminar, students earn credit for research on real educational management problems while working under the direction of educational administration faculty.

College Services—In addition to its teaching and research functions, the College provides service to students through its Student Personnel Office and Bureau of Recommendations, through conferences and institutes held on and off campus, and through the Student Assembly.

Student Personnel Office—The Student Personnel Office was reorganized during the biennium. A research psychologist was assigned to undertake institutional studies, conduct staff research consulting, and aid graduate students with their dissertations. A counseling supervisor was assigned to work directly with the internship and counseling programs. As a result, group counseling became a regular part of the program, an orientation-registration program for students transferring from colleges outside the University was initiated, and group program planning and information sessions on routine matters were provided for CLA sophomore advisees. Modernization of the record-keeping system was begun during the biennium, but the trial phase of the system will not begin until 1970-1971.

Bureau of Recommendations—During 1968-1969, 51,123 vacancies were processed and the Bureau registered 3,039 candidates for positions. Forty percent of these were current College of Education seniors, 32 percent were alumni seeking positions or promotions in public schools, and 28 percent were individuals interested in college and university positions. Of the 3,039 persons registered with the Bureau, 1,692 reported placements in new or first positions. More than 83 percent of the new graduates employed by elementary and secondary schools accepted assignments in Minnesota, but placements were also made in 46 other states and 12 foreign countries.

Conferences and Institutes—The College continued to sponsor and cosponsor a wide variety of conferences on educational problems. The annual Schoolmen's Day, the Public School Law Institute, the Symposium on By-Passed Populations, the REACH Conference, Symposia on Child Psychology, and many other conferences drew people from around the state and nation to the University.

Student Involvement—A Task Force on Student Involvement, consisting of faculty and interested students, began a series of meetings on ways in which "students and faculty can interact appropriately in proposing changes in programs, policies, or activities of the College." As a result of these meetings, the faculty accepted a Task Force report that called for formation of an Education Student Assembly as the representative student body of the College. Assembly representatives were apportioned according to enrollments of the departments in the College, with no department receiving less than one representative. Consistent with the Report's recommendation that "the Education Student Assembly be responsible for planning and implementing its own action program," Task Force lead-

ers planned and conducted a winter seminar which brought Herbert Kohl, author of *36 Children*, to the campus. To aid the Assembly in implementing its program, office space was provided near the administrative offices of the College. In addition, students were given official positions in many policy-making activities of College departments and divisions.

Problems and Needs—The major problem deterring the College of Education from greater accomplishment of its mission is lack of adequate space and facilities. The building request, presented as a major building need of the University, was not funded at the 1969 legislative session. A proposal for Phase I of construction of a building has been prepared for the 1971 session and initial presentation has been made to the Legislative Interim Building Commission. Such construction could at least ease the College's present program-suffocating space shortage. Adjustments that have spread units of the College to more than 15 buildings have significantly diminished essential communication among College units.

Teaching and advisory loads in a number of fields remain dangerously high, threatening the quality of programs and services to students and the educational community. New position allocations to the College have ameliorated this situation somewhat, and controlled admissions procedures put into effect during the biennium will also help, though the situation has not been fully remedied.

Despite these difficulties, the work of the College has moved forward. Programs emphasizing cooperative efforts with the public schools and colleges in the state have been initiated. The faculty has shown considerable ingenuity in both maximizing utilization of available resources and securing external support. Their efforts have been a major contribution to the strengthening of University-community relationships as they have developed new roles in cooperative efforts within the Twin Cities and throughout the state.

Optimism for progress in fulfillment of the mission of the College remains high. The solution of the space problem by construction of a new Education building is the single most important need that must be met if the optimism and enthusiasm now prevailing are not to be lost.

GENERAL COLLEGE

Alfred L. Vaughan, *Dean*

One factor underlying the persistent demand for experimentation and change in American higher education is the growing awareness that traditional baccalaureate programs no longer fit the needs and aspirations of large numbers of students. The General College has been engaged in academic experimentation since 1932, and for 38 years its attention was focused upon programs for college freshmen and sophomores. In June 1970, the University Senate and the Board of Regents agreed that the College should extend its mission to include development of experimental third- and fourth-year programs, some of which would terminate in a General College bachelor's degree. This extension of its original mission was the most important single event in the General College during the biennium.

By philosophy and experience, the College is well-equipped to respond to the challenge of presenting higher education in new and unique ways—ways that later might become useful to other institutions. The characteristics of the General College structure and curriculum—open admission, free-choice curriculum, monitoring individually planned programs through advising and counseling, comprehensive testing to identify student characteristics and verify academic achievement—need not be limited to two-year programs. The existing combinations of general and occupational education, classroom experience, supervised field-work, internships, and independent study are all applicable to three- and four-year programs. The supportive services provided for students do not necessarily end at the second year, nor do the internship programs for prospective college teachers and counselors. The General College Research Center, which coordinates and facilitates faculty experimentation and evaluation, need not limit its attention to two-year programs. Also, it is not principle, but practice, that limits combination of General College resources with those of other University units and of other institutions.

The faculty has adopted certain broad policies to guide its advance into new

terrain. As far as possible, within the principle of controlled growth, admission should be unrestricted; the General College student body should represent a wide range of abilities, interests, talents, and social, ethnic, and economic backgrounds. The two-year Associate in Arts degree program must be retained, and general education must remain the core of the total curriculum. Students, faculty, and administrators should continue to evaluate the two-year program and should share in planning experimental new programs. The innovative courses should be pragmatic, pluralistic, and wherever appropriate, unencumbered by such prescriptions as credits, hours, grades, levels, prerequisites, sequences, and divisions. The free-choice curriculum and access to courses offered in other colleges of the University should continue, special and occupational education should be integrated with general education, and criteria for evaluating courses, students, and faculty should be based upon the goals of the College as well as on its unique function.

The University of Minnesota system enrolls a cross-section of the state's high school graduates. Its units represent the total spectrum of post-secondary education—two-year collegiate, occupational, and technical programs; two-year general education programs; and a variety of baccalaureate, professional, graduate, and postdoctoral programs. Although academic opportunities offered in other systems should not be duplicated in depth, the University, as a major state and national educational resource, has an obligation to maintain a representative sample of students and a pattern of program models designed for export as well as internal use.

GENERAL EXTENSION DIVISION

Willard L. Thompson, *Dean*

The charge by the Regents of the University to the General Extension Division is "to bring the facilities of the University to the people of the State who cannot come to the campus to study." That assignment, tendered in 1913, saw changing emphasis during the 1968-1970 biennium. Foreshadowing coming years, effort has been directed increasingly to trying to meet the student not only where he is, but under such circumstances that he can and will want to continue or resume his studies.

For all groups served by the Division—professionals and businessmen, disadvantaged and minority group members, middle-Americans—the twin goals of an atmosphere in which learning is both wanted and can take place and the means by which needed educational resources can be at hand are constantly sought. Results of efforts during the biennium have been a shift to a more varied clientele in terms of both economic and educational status, new problems of funding, and a clear call from the community for more educational services at less cost.

A total of 130,112 individuals were registered in courses and conferences during the biennium, 79,042 in periodic courses such as evening classes and independent study and 51,090 in intensive formal conferences, institutes, and workshops. The total number of registrations increased just 1 percent over the previous biennium, with a 5 percent gain in periodic course registration and a 4 percent loss in intensive formal course registration. Registration totals do not include the audiences for radio, television, films, or art exhibits, or users of other educational services of the Division that extend statewide and annually serve hundreds of thousands of Minnesotans.

The Division has also concerned itself with the program-related aspects of planning for the proposed new continuing education facility. The building of the Nolte Center in 1936, and its assignment to General Extension to administer, launched a residential center concept that has swept the country. There are now over 50 such centers. But while other universities built or expanded residential centers, the Nolte Center was forced to abandon its unique residential quality; it has become an anachronism, with the chairs and blackboards of the 30's trying to meet the needs of the educationally sophisticated 70's. It is the conviction of the Division, based on over 30 years' experience, that planning for a new center must be along programmatic lines. The demand will be for more specialized information set into a context of reality and comprehensiveness. This means large conference rooms surrounded by groups of smaller rooms, all adequately equipped with technical aids and adaptable to highly flexible use. In terms of clientele, the pace of life and costs of commercial accommodations de-

mand that serious students be provided with quiet, inexpensive surroundings—a residential setting in an area accessible to both faculty and students. These broad outlines and the details of planning have occupied the dean and many of his staff, particularly in the second year of the biennium.

Of overriding concern in all Extension planning is cost. It is more evident every year that a broader support base for Extension activities must be sought from public funds. The message of learning as a life-long pursuit is being heard and believed; the people of Minnesota want continuing education as part of the total educational package, not as a surcharge.

Continuing Professional Education—Programs in continuing professional education are offered, for the most part, by specific departments assisted by generalists in the Department of Conferences and Institutes. During the biennium, 476 courses were offered, enrolling 33,085 individuals. Minnesotans accounted for more than 75 percent of enrollments. Since the building of the Center for Continuation Study in 1936, 271,514 enrollments have been made in 4,265 courses.

In the 1966-1968 biennium, three specialists and two generalists were added to the professional staff; during 1968-1970, one generalist was added and toward the end of the biennium one specialist left the staff. While the 1966-1968 biennium showed a dramatic rise in both number of courses offered and enrollments, there was stabilization on both counts in the 1968-1970 biennium. The number of courses offered decreased from 476 in 1966-1968 to 456 in 1968-1970; enrollments dropped from 35,223 to 33,085. Nevertheless, established programs continued and many new programs were added.

Effects of changes in use of space in Nolte Center upon the conference programs must be noted. Many former sleeping rooms have been pressed into use for offices, leaving only 12 sleeping rooms in the Center. Residential programs for more than 25 participants must be scheduled in off-campus facilities. The meeting rooms do receive considerable use for daytime courses designed for commuters or for groups willing to sacrifice some of the unique features of residential programming.

The *Department of Conferences and Institutes*, in addition to providing supporting service for all conferences given through the Division, generated several innovative programs on its own. Among them were courses aimed at professional educators, including Teaching by Inquiry, Multimedia Lab, Cinematics, Teaching Humanities, Behavioral Disorders in Children, Student Unrest, Modular Flexible Scheduling, and Indian Education. Civic and cultural programs included Urban Core Conference, Sex Education Workshop, Baconian Dialogues, and Death, Grief, and Bereavement.

CONFERENCES AND INSTITUTES — NOVEMBER 13, 1936, TO JUNE 30, 1970

	7-1-68 to 6-30-69	7-1-69 to 6-30-70	11-13-36 to 6-30-70
Number of Courses	218	233	4,174
Number of Registrants	13,023	15,543	260,821
From Minnesota	10,359	11,499	201,097
From Other States	2,445	3,589	55,759
From Foreign Countries	219	455	3,965
Male Registrants	9,818	11,672	180,464
Female Registrants	3,205	3,871	80,357
Number of Faculty	2,275	2,377	62,828
Course Hours	4,504	4,876	108,517½
Course Days	823	968	19,239½

The *Department of Continuation Medical Education* cooperated with the Minnesota Academy of General Practice in an attempt to correlate programs with the needs of practicing physicians. Success was evidenced by increases in enrollment and in the number of courses.

The *Department of Pharmacy Continuing Education* expanded its policy of taking programs to pharmacists in all parts of the state. Two television series, with faculty from academic, professional practice, and business spheres, have been viewed throughout the state and the tapes have been used in South Dakota, Nebraska, and Texas. Seminars, held throughout the biennium, included the Drug Abuse Training seminar in which 80 pharmacists were trained to assist in planning or to participate in local drug information programs. The Department cooperated with professional pharmacy organizations in producing several programs to aid pharmacists in meeting new governmental requirements. The director has devoted much effort to creating cooperative programs in continuing education.

The Department plans to implement delivery methods such as programmed instruction and audio-tape cassettes in the future. Retraining programs for health professionals will be given high priority. This increased activity is dependent upon the addition of one staff member (currently authorized) and improved support positions. Additional space for staff also will be required.

The *Department of Continuing Dental Education* responded to a revision of the State Dental Practice Act by developing courses for dental ancillaries who need training for expanded duties.

The *Department of Continuing Education in Engineering and Science* continued its program aimed at making the resources of the Extension Division and the Institute of Technology (IT) available to the technical community. Both degree and nondegree programs are included in the activities of this Department.

In 1969, under the State Technical Services Seminar Program, eight programs were developed and presented in special interest areas such as corrosion control, highway traffic planning and control, and computer methods in structural analysis. The value of joint efforts by technology transfer agents and seminar planning groups was clearly established and the demise of State Technical Services nationally was most untimely. Every encouragement should be given attempts to reformulate this program either at the state or national level.

Use of the CCTV link between the University and IBM at Rochester was increased to include courses leading to the M.S. degree in computer science. The experience gained in the existing electrical and mechanical engineering CCTV programs has given impetus to a study of possible expansion of the Rochester program to other industry by use of an Instructional Television Fixed Service (ITFS) system. Indications are that such a system would be heavily used in transmitting a greatly expanded technical seminar program. This Department is working closely with the Institute of Technology and the Department of Radio and Television in the pilot study project.

Arrangements have been completed between IBM Corporation, several IT engineering departments, and the Department of Evening and Special Classes for a pilot project in the use of experienced industrial personnel as instructors in plant-based courses that are identical to University departmental offerings. Academic departments will monitor course presentation, handle testing, and assign and record University credit for successful students. If this plan is widely adopted, the quality and balance of educational programs for industry would greatly exceed what University staff could provide directly.

The Institute of Technology and the General Extension Division are discussing a new postbaccalaureate program leading to the Professional Development Degree in Engineering. In recognizing such diverse educational activity as seminars, independent study, supervised investigations, and evening and daytime course work, this program is ideally suited to the needs of a person desiring a truly continuing education. The Department is also cooperating with the MacPhail Center to determine ways of applying the new educational technology in group and individual instrumental instruction. Equipment has been loaned by the 3M Company and a series of instructional experiments are being developed.

The *Department of Continuing Business Education* offered a variety of self-contained application-oriented seminars. The case method, role-playing, small group discussions, and computer-assisted simulations were the most prevalent pedagogical devices for these programs. Participants were chiefly from middle- and upper-management levels in private business firms. Administrators from government agencies, hospitals, and other nonprofit institutions also attended many of the courses.

In early 1970, plans were inaugurated for the Minnesota Executive Program, a six-week course for top managers that emphasizes corporate policy and strategy decision-making skills. By June 30, 1970, ten Minnesota firms had entered into a three-year agreement to participate; the goal is commitments from 20 Minnesota firms and five to ten firms from contiguous states by winter 1971. A unique feature of the program is the Member Firm Plan, which requires participation of the company's chief executive in a precourse seminar along with the three-year commitment to participation by other top managers of the firm.

Plans for the future include review of the role of the University in up-grading the practice of management in the community. An effort will be made to increase communication between University faculty and leaders of the business community.

The *Department of Continuing Education in Social Work* offers courses through several departments of the Division as well as programs of its own. Metropolitan area conferences are being replicated out-state with good results.

Through funds received from the Governor's Commission on Crime Prevention and Control, training programs reached more than 150 custodial and supervisory personnel in state penal institutions and the Ramsey County Workhouse. Four week-long summer institutes were presented for the first time, and Institutes on Social Work and Law conducted in Rochester, Duluth, and the Twin Cities attracted 300 registrants representing social work, law, police, clergy, and the courts. In preparation for the latter programs, an audiovisual tape, "The Social Worker as an Expert Witness in a Courtroom Situation," was produced in cooperation with the Departments of Continuing Legal Education and Radio and Television. This tape has been used throughout the state. Several Symposiums on Drug Abuse and Dependence for Social Workers were held in Minneapolis and in Marshall. The Department continued to operate the third year of the Head Start Supplementary Training Program. A 45-credit Certificate Program in Early Childhood Education, provided by and through the General College, has a current registration of 75 students, many of them from deprived areas.

The Organized Extension (Certificate) Program in Social Work, developed to bridge the gap between the baccalaureate and M.S.W. degree programs, is achieving increasing recognition by the state merit system, county Civil Service departments, and other welfare agencies throughout the state. Enrollments have increased each year. Other evening social work courses are addressed not only to social welfare workers but to nurses, foster parents, public health workers, and correctional agency personnel. The many out-state requests for the Certificate Program, institutes, and conferences are becoming increasingly difficult to accommodate without charging unusually high fees in the absence of University subsidy.

The *Department of Parent and Family Life Education* serves professionals in education and social work, parents, and others concerned with children and youth. Institutes for Leaders in Parent and Family Life Education were held in four cities in Minnesota for professionals and nonprofessionals. A Sex Education Institute for Adults held on the Minneapolis campus and a new conference for 17- to 22-year-olds, Sex and the Young Adult, enrolled almost 2,000 persons. A conference on discussion techniques for the League of Women Voters was held for the first time, and evening classes in parenthood were offered in the metropolitan area each quarter. Arrangements were made for approximately 170 lectures to be given throughout the state. Future plans include metropolitan area extension classes in Family Life and Sex Education for Elementary Teachers in answer to need expressed by administrators and teachers.

The *Program of Continuing Labor Education* is part of the Labor Education Service, receiving support from General Extension and the Industrial Relations Center. Programs for the biennium included conferences on Labor's Safety and Rehabilitation, Labor and World Affairs, and New Issues in Collective Bargaining; the annual Steelworkers' Workshop and American Federation of Teachers Leadership Action Workshop; the OEO Labor Leadership Project; the Union Leadership Academy and Basic Labor School; and special programs for educational and community groups.

The *Department of Continuing Legal Education* continued an active programming and publication schedule that included video-taping and telelecture experiments with the Department of Radio and Television and experiments in the use of audio-cassette tapes. In addition to the close working relationship already established with the Minnesota State Bar Association, cooperative programming was undertaken with several other state and regional organizations, among them the North and South Dakota Bar Associations, the Illinois and Wisconsin Continuing Legal Education organizations, the Minnesota Society of Certified Public Accountants, the Minnesota Governor's Commission on Crime Prevention and Control, the Minnesota Probate Judges Association, and the Minnesota and Minneapolis Legal Secretaries Associations.

The 24 new practice manuals published during the biennium continue to be in demand by practicing lawyers, judges, law libraries, and law students. Emerging areas of law such as consumer protection and environmental quality are receiving increasing attention from the Department that will ultimately lead to new programs and publications.

Total registration for the 25 programs offered during the biennium was 4,519. While the majority of the courses were offered in the Twin Cities area, programs were also held in Brainerd, Duluth, Fergus Falls, Mankato, Marshall, Moorhead, Rochester, and St. Cloud, most of them at least twice.

Community-Related Programs—Certain community needs such as direct service to civic units and voluntary organizations and career training are highlighted by several of the Division's departments.

The *Municipal Reference Bureau*, operating jointly with the League of Minnesota Municipalities, broadened its cooperative efforts with other organizations and groups, especially in the areas of training and technical assistance for municipal governments.

A labor relations consulting service was undertaken with funds from the federal Office of Local and Urban Affairs to advise municipalities and counties on labor relations problems and to provide limited assistance in negotiating sessions. Increasing demands for this service show that it fills a real need. When federal funds were exhausted in June 1970, the League entered into a joint funding agreement with the League Metro Section and the Metro Inter-County Council; also, more than 20 municipalities in the metropolitan area have subscribed to a supplementary labor relations service. It is apparent that this program will continue to grow, requiring additional personnel and office space to house a research collection of relevant data.

The League-Bureau participated with the state, local governments, and other organizations in forming a State-Local Data Systems Council to develop a basis for the use of data processing by local units of government for record-keeping and administrative functions. Undoubtedly, there will be growth and development in this area in the next biennium.

In 1969 and 1970, the metropolitan area salary survey was sponsored by the League, its Metro Section, the Metro Inter-County Council, and the Minnesota Association of Counties. In addition to county salary data, private industry data through the State Department of Employment Security and Civil Service Department were included, making more complete comparative salary information available to all units of government.

Legislative activities were intensified in 1969-1970 and will continue at this level during the next biennium. Policy statements on major issues of concern to local governments were developed and adopted by member municipalities in June 1970. Since the statements include references to federal legislation such as revenue sharing and housing, efforts will be directed toward influencing the Minnesota Congressional delegation.

Since the fall of 1969, new staff members have been added, and the League's new larger quarters are rapidly filling up as new programs and expanded services are undertaken. The League furnished housing and clerical services (at cost) to the Ramsey, Hennepin, and Anoka County Leagues, making close cooperation possible. The services will be offered to any new leagues that might be formed, especially in the metro area.

Membership in the League grew from 686 to 710 municipalities during the biennium, and the League handled 9,076 inquiries from governmental units in Minnesota and elsewhere. Schools and short courses drew 4,583 governmental

employees; 5,361 attended state and regional meetings. Field service people made 1,017 visits and consulted with 1,949 officials.

The major thrust of League-Bureau future plans will be toward greater cooperation with organizations representing other governmental units (counties, school boards) as well as with the University, state agencies, and groups active in the interests of local government. Joint programs and financing seem to be the logical approach to problems that overlap jurisdictional boundaries and that become more complex as the needs for new services develop.

The *Fire-Service Information, Research, and Education Center* was created August 15, 1969, as a result of legislative action following a recommendation of the University Advisory Study Committee on Fire Protection and Fire Prevention Education. The Center is attached to the Municipal Reference Bureau.

Functions of the Center are to serve as the secretariat and research arm of the State Advisory Council on Fire Service Education and Research; coordinate the state's fire service educational programs, offered by the University, the State Department of Education, the junior colleges, and area vocational-technical schools; investigate means of improving fire suppression, prevention, and control, and their administration; and provide guidance and information for fire departments and local governments.

Initial emphasis was on developing an A.A. and A.S. degree program in fire prevention for the state junior colleges, where 270 students have enrolled in four specialized courses. Ten area vocational-technical schools have adopted Center "educational packages" designed to provide manipulative training for the firefighter. Fall 1970 enrollment is expected to exceed 450. Teacher-training courses for fire department instructors are also offered through the area vocational-technical schools and extension short courses; 150 students have completed these courses since fall of 1969. Other offerings sponsored by the Center are the Annual State Fire School; staff, command, and administration college credit and noncredit courses; and workshops on related subjects. Independent study courses will be developed as part of a proposed certificate program through General Extension Division. An interdisciplinary University Advisory Council to the Center has been set up.

The *Minnesota Management Development Program* was funded under Title I of the Higher Education Act through 1968 and funded jointly by state and Title I funds through June 30, 1970, at which time the Program became totally state-funded. During the biennium additional classes were added to the courses offered for middle- and higher-level state supervisory and executive personnel. Eight classes for middle executives were completed by 102 persons; 10 classes were held for 223 executives just below department head level; six seminars were held for the Governor and his department heads, with average attendance of 36. Each seminar was directed toward a significant management problem facing state government.

The *Civil Defense Education Program*, in its sixth and seventh years of operation, continued to lead the nation in the number of courses and persons attending. Emphasis was placed on conferences for public officials and emergency operations simulation exercises. In addition, courses in Civil Defense Management, Radiological Defense, Plans and Operations, and Shelter Management were held throughout the state.

The *Professional Advisory Service* was established in January 1968 to help practicing architects incorporate dual-use space into building design and to advance the fallout shelter program. During the biennium, the Service assisted in incorporating shelter requirements in the new State Building Code, established a program through the Minnesota State Architects Committee for Shelter and Disasters, and conducted meetings and seminars to coordinate civil defense and architectural production.

The *Office of Delinquency Control* grew in both staff and program during the biennium, addressing itself to creation and development of educational and experimental programs in all aspects of crime prevention and control. A major activity was the administration of two annual institutes for personnel in the juvenile justice system, with an attendance of 161 persons during the biennium. Renewed funding for their continuance is being sought from the National Institute of Mental Health.

Project Newgate, a new University program for inmates at the State Reformatory for Men at St. Cloud, was established with financial assistance from the Office of Economic Opportunity within the walls of the Reformatory. When students leave the Reformatory on parole, they come to the Minneapolis campus, live in one dormitory, are integrated into campus life, and share a group program of discussion and mutual assistance. None of the 29 Newgate students who have been released to date has yet been returned to prison for commission of a new serious offense. Expansion of Project Newgate is now under way at the Minneapolis Workhouse, where the program will focus upon the needs of American Indian inmates. Studies in American Indian history and culture will be added to enhance the self-concept of individuals in this group. The Minnesota Newgate program received national television coverage on both CBS and NBC in January 1970.

A Pre-Hearing Information Service, funded by an 18-month Ford Foundation grant, is designed to assist the Hennepin County Attorney's Office in deciding whether to prosecute an alleged felony offender. New programs being developed include a project that will provide legal services to inmates in Minnesota's correctional institutions and an educational program for Minneapolis Park Board Police. The former seeks Office of Economic Opportunity funding; the latter will be locally financed.

The *World Affairs Center* provides conferences and lecture series and advisory services on matters related to world affairs and carries on a modest research effort to explore the intricacies of public opinion and American foreign policy. The Center's advisory Board of Directors encompasses an affiliation with 34 state voluntary organizations primarily concerned with world issues and 11 Minnesota public and private colleges and universities that offer substantial programs in international relations.

Among conferences and seminars held by the Center during the biennium were a residential workshop for high school teachers on the United States and the New Europe; a four-day, four-city "Day with the Foreign Service," which reached a live audience of over 5,700 persons and a media audience somewhere in the hundreds of thousands; the eleventh and twelfth Midwest University Seminars on U.S. Foreign Policy; "Military Factors in Foreign Policy," a residential seminar for college faculty throughout the state; "Development Assistance and U.S. Foreign Policy: Focus on Africa," a seminar and lecture series for University faculty and community leaders; "A New Look at Foreign Development," with the League of Women Voters of Minnesota and the Minnesota Council of Churches; a "Minnesota Symposium on Foreign Policy," for social studies teachers; a high school seminar on "United States Commitments Abroad" for 550 students; and "National Security and American Foreign Policy," a college faculty seminar with the Association of Minnesota Colleges. Two programs in summer 1969 were "Diplomats in Residence," in which five senior foreign service officers lectured in political science classes, appeared on the media, and participated in community events, and a "European Tour for Teenagers," covering six countries, with briefings before departure, at NATO headquarters, and at the U.S. Mission in Berlin.

The Center and its staff produced several publications and contributed to the *Foreign Service Journal*, *International Studies Quarterly*, and *The Congressional Record*, among others.

In addition to conferences and seminars, program plans for the 1970-1971 season include a 26-week television series on the topics in the Minneapolis *Star's* World Today program. Continuing is the weekly commentary on world affairs over KUOM radio.

Still needed by the Center is a full-time staff member to work closely with high school social studies teachers and student programs.

The *New Careers Program* met a continuing obligation to its students and to the federal funding source to develop appropriate curriculum and credentialing for the paraprofessional in the human services. This included special coursework, guidelines for academically accredited field work, and a General College 45-credit Certificate for New Careers. The certificate was designed as an intermediate mark of academic achievement for students in a half-time program who also work in local schools and social service agencies.

The first New Careerists graduated in June 1969, 103 students with cer-

tificates, 21 with A.A. degrees, 2 with A.L.A. degrees, and 2 with B.A. degrees. Arrangements were made to continue funding for many who wished to continue. Counseling and supportive services for disadvantaged students were provided by the General College HELP Center.

A study of New Careerists, most of whom had no post-high school education and had long been out of school, showed that more than half were still in school, many well on their way to a baccalaureate degree. The same study showed an extremely high rate of employment in more meaningful career lines with advancement possibilities and a 60 percent rise in hourly wage. This project has been acknowledged as playing a creative role in development of many programs modeled on New Careers, including the Career Opportunity Program and the Public Service Careers Program.

The *Program of Continuing Education in Urban Affairs*, funded under Title I of the Higher Education Act, uses all channels of citizen education to make the extensive resources of the University available to the citizen in an understandable and useful form. Conferences included "The British Police Experience," "European Industrialized Housing," "Challenges and Opportunities for New Towns and Cities," "The Scandinavian City—A Model for Urban America?" and "New Developments in British, Canadian, and American Local Government." In each conference, top authorities from Europe and Canada demonstrated the universality of the urban dilemma and the possible benefits of a wider base of knowledge. Also presented were the Second Urban River conference; a lecture series, "Color and Culture in America—Separation or Integration"; and the Summer Urban Jazz Festival. Neighborhood groups in the Twin Cities were given resource materials and training in effective citizen action and four legislative issues seminars were held for their membership.

The Urban Affairs Newsletter is mailed to over 1,200 urbanites in the metropolitan area and throughout the state. Publications included major conference addresses and "The Index of Films for Urban Affairs."

As the office continues to serve as a clearing house for letters, telephone inquiries, and personal visits from persons seeking information on urban affairs, the Program needs space within the University structure, adequate staffing, and sustained funding.

The *State Organization Service* continued to serve the community's non-profit education groups, as well as other University departments, with administrative and secretarial assistance and advice on organizational program problems. Direction of growth and development depends on decisions to be made on possible consolidation of General Extension Division services.

Instruction for the General Public and Special Groups—The following departments serve the general public and certain groups within it with credit and noncredit courses in largely nonprofessional areas and with supportive counseling services.

The *Department of Evening and Special Classes* offered some 2,100 different courses in 89 academic departments to 113,000 students in 1968-1970. In addition to a large and basic curricular core that residents depend on for degree work, occupational advancement, or personal enrichment, the Department offers a wide variety of courses on topics such as morality, religion, poverty, pollution, education, youth, and politics. Enrollments in the latter courses attest to the growing concern in these areas. Newly introduced courses include Afro-American and Indian studies, several topics in ecology, expanded offerings in computer science, and a sequence on alcohol, drug abuse, and dependency.

To make the evening program more accessible to the growing Twin Cities suburban population, in fall 1969 the Department established centers in Roseville's Kellogg High School, where the response has been very good, and at Richfield High School, where the response has been almost overwhelming. A 1968 experiment with the Minneapolis Central Community School tested the advantages to a neighborhood of a combined program of community school offerings and college-level adult education courses; initial results indicate that the concept has implications for college, elementary, and secondary courses.

Evening and special classes are now offered regularly in eight Twin Cities

locations—the new sites mentioned above, Robbinsdale, the St. Paul Extension Center, the MacPhail Center, and the St. Paul and Minneapolis campuses.

In fall 1969, the evening class student body elected eight senators and eight alternates to the University Senate; so far as is known, this is the only senate in the country to which evening students can be elected. Evening class senators and alternates also comprise the Evening and Special Classes Student Advisory Board, which in 1969-1970 discussed such issues as tuition rates and incidental privileges for evening students with various members of University administration, including three vice presidents and the Board of Regents.

Summer evening classes were introduced on the Minneapolis campus in 1969 and continued in 1970, each term enrolling approximately 2,300 students in more than 50 courses. Prior to 1969, summer evening courses were held only at the downtown metropolitan centers. Enrollment increased by 50 percent with the opening of the campus summer evening program.

In 1969-1970 the Department offered credit courses on TV (ecology) and radio (Shakespeare), with credit work via television proving possible and popular. The combined use of various media, including telephone lectures and office hours, will concern the Department as it seeks means to extend the University more effectively.

Early in 1969, special courses and off-campus functions became a departmental responsibility. Under the special-course function, several credit and non-credit programs in various formats were offered to the public. Examples of the 265 courses the Department offered include community seminars held in strategic locations around the metropolitan area and out-state; community-oriented interdisciplinary lecture series designed to involve community members and University faculty in discussion of urban problems and issues; a series of workshops for political science teachers from colleges throughout the country; a lecture series on "The Portuguese World"; a lecture series on "The Classical Heritage," offered Saturday mornings in Hutchinson, that gave high school students, parents, and teachers the opportunity to discuss topics on classical literature not typically covered in a high school curriculum; one-day courses for social studies teachers offered in Virginia, Rochester, Fergus Falls, Worthington, and Bemidji; industrial arts courses offered throughout the state with the help of financing from the State Department of Vocational Education and staff from out-state vocational-technical institutes; and a family life course for Macalester College students and community members that featured lectures and independent study and granted credit toward either a University or a Macalester degree.

In winter 1969 the Department assumed responsibility for two community-based educational projects, one in the Glendale housing development in Southeast Minneapolis, the other in the Pilot City area of North Minneapolis. These projects allow testing of the educational services appropriate to two different kinds of populations—in Glendale, a relatively small, homogeneous community, and in Pilot City, a large, heterogeneous multicomunity. The programs seek to encourage reticent, and for the most part, poor people commonly thought to be past their educational prime to attempt a first or second chance in college-level academic courses and to find a bridge to the opportunities of the University itself. The Pilot City project is testing an open admissions system that admits people in a wide geographic area into tuition-free courses.

In fall 1970, an agency certificate program was initiated in the Summit/University area of St. Paul to train low-income employees in public agencies for more responsible positions through courses leading to specific General Extension Division certificates. Students in this program pay partial tuition; the sponsoring agency and the Center for Urban and Regional Affairs (CURA) provide the balance.

Financial support for these programs has been provided largely through legislative funds granted to CURA. The Department of Evening and Special Classes has contributed considerable administrative and clerical support.

A study of these programs and of various admissions systems, including a newly instituted General Extension Division scholarship system, is now in progress, and recommendations for revamping the programs and admissions systems will be forthcoming.

The rate of change in programming will undoubtedly accelerate in the next biennium. These are a few of the challenges facing the Department:

A concerted effort must be made to reach particular groups—especially with specialized and advanced education—that are not now reached in a sufficient, systematic way because of administrative staff shortages or budgetary restrictions.

As the state junior and four-year colleges develop lower-division and under-graduate extension programs, and as the University turns its emphasis to more advanced work, the Department must determine its role in the University's emerging mission. It must continue exploring ways in which its programs and the evening programs of the metropolitan junior colleges can work cooperatively to serve the adult educational needs of the area. In the next biennium junior colleges will increasingly be able to serve people who seek introductory degree credit courses. This Department, in addition to offering courses of a lower-division nature, will be looked to for more specialized courses at all levels.

However, General Extension cannot establish an advanced program, one basic function of which would be accommodation of transfer students from junior colleges, unless sources of support besides tuition can be provided. The relatively expensive advanced courses the Division offers have been possible in the past only because of the income from lower-division courses. Tax-supported junior colleges, with a tuition rate half that the Division must charge, promise to erode that income.

There is a pressing need to provide public school and junior college teachers with course work that will allow them to maintain their certification, upgrade themselves, or work toward an advanced degree. This Department must seek ways in which combined University and state college resources may be employed most efficiently in the continuing education of this group. The Division can also expect more requests from business, industry, and the professions for assistance in providing continuing education.

As educational costs rise, more low-income people are denied an opportunity for higher education. A broader-scale, systematic program must be developed for recruiting, counseling, admitting, teaching, and serving the educational needs of these people. If community projects continue to be the responsibility of the University, existing admissions systems will be modified to make projects more efficient and admissions more equitable. However, the pilot projects reveal that there are many more people to be served. The need is for an admissions system that does not deny educational opportunity by reason of geographic location or financial circumstances.

Finally, the evening class program must have available to it the best physical resources of the University. Clean classrooms, intercampus bus service, clean and convenient food service, street lighting that will make the campuses safe and attractive, and adequate parking facilities without penalty rates are pressing needs for the next two years.

EVENING AND SPECIAL CLASSES ENROLLMENTS — 1966-1970

	1966-1968	1968-1970	% Increase or Decrease
Twin Cities Campus	74,081	68,544	- 7.4
MacPhail Center	5,269	4,524	- 14.1
Robbinsdale Center	5,837	4,534	- 22.3
St. Paul Center	7,379	8,258	+ 11.9
Richfield Center	....	1,635	...
Roseville Center	....	697	...
Duluth and Area	10,027	10,231	+ 2.0
Rochester Center	433	4,728	+991.9
Morris	548	837	+ 52.7
Crookston	57	....	...
Special Courses	9,705	9,013	- 7.1
TOTAL	114,336	113,001	- 1.2
Number of Courses	2,121	2,164	+ 2.0
Number of Class Sections	3,737	3,847	+ 2.9

The *Duluth Evening Classes Department* will be reorganized under a new director in the next biennium. The retiring director will stay on while new directions are discussed and a new director is sought.

The *Morris General Extension Office* experienced greatly increased enrollments during the biennium due in part to the addition of graduate courses. Outstanding among the workshops and institutes offered was a four-week Early Childhood Supplementary Services, Career Development summer program serving 80 low-income adults from West Central Minnesota. In cooperation with the Southwest and West Central ERDC, a study was conducted to determine the needs and interests of public school teachers in higher education offerings.

The *Rochester General Extension Center* completed its fourth year of operation in 1969-1970. Significant contributions toward attainment of its goals were made through expanded financial and administrative support from the Rochester community and the University, expansion of program-planning efforts, and organizational improvements for development and management of programs.

Programs were initiated leading to master's degrees in mechanical engineering and computer science. New courses were offered in home economics, forestry, and agriculture. Basic courses for special learning disabilities teachers were added, as well as courses in school recreation, recreation for the retarded and the aging, and courses serving junior college faculty and administrative groups. A three-year graduate program in educational administration has been prepared to begin in fall 1970. This program cycled in Rochester and two other out-state cities, is significant as a prototype for broader development in Rochester.

A major effort has been devoted to opening new markets in Rochester and its environs and to better inform potential students of opportunities. Radio, television, newspaper, and direct mail have been used, and courses have been advertised in Chatfield, Red Wing, Plainview, Owatonna, Austin, and Lake City. Sources of enrollments expanded even into Iowa. Improvements in planning were also initiated, particularly in budgeting, scheduling, staffing, and advertising, and efforts at long-term financing were begun.

Special attention was paid to relationships with Rochester State Junior College and Winona State College, including joint sponsorship of activities. The director again assisted the Rochester Junior College in studies of existing programs of the College and implementation of additional programs.

During 1968-1969, 42 credit courses enrolled 758 students; 924 students were enrolled in continuing education courses. During 1969-1970, 62 credit courses enrolled 1,323 students; 1,723 students enrolled in continuing education courses. Most courses were taught by University faculty, although faculty drawn from the Rochester area were used and the feasibility of increased use is being studied.

The employment of a new assistant director has served to strengthen the administrative capacity of the Rochester Center. However, substantial increases in staffing are needed.

The *Continuing Education for Women Program* became a separate department during the biennium and took responsibility for neighborhood seminars, with the absorption of the Department of Special Courses by other units of the Division. The end of the biennium concluded the first ten years of the Program, during which both the number of courses offered and enrollments increased markedly. In 1968-1970, 32 courses were offered, double the number offered in 1966-1968; enrollments increased from 524 in 1966-1968 to 1,104 in 1968-1970, the latter figure including 206 in neighborhood seminars. The appeal and effectiveness of different course formats such as short series on special topics, Sunday-supper discussion groups on the St. Paul campus, day-and-a-half retreats, and pre-travel talks were explored. Particularly successful were two Generation Gap seminars, in which students met with adult women and helped define the attitudes of the younger generation in informal discussions of contemporary culture.

Plans include additional credit courses at MacPhail Center, new interdisciplinary seminars such as *The Woman in America* planned for fall 1970, added cooperative ventures with organizations such as the YWCA, the Woman's City Club of St. Paul, and the Minnetonka Center of Art and Education, and further

attempts to reach women out-state. Needs include scholarships for part-time students, a place on campus easily accessible to students, and a continued broadening of kinds and times of course offerings to reach new students. The Program's students have a good record of continuing their education; some have been taking courses off and on for the greater part of the ten years the Program has been in operation. Reticence and lack of publicity still present problems in attracting new students.

The *Department of Independent Study* continued to offer students the option of taking University courses through the independent study method. Special programs, including tuition-free courses for inmates of Minnesota correctional institutions and the community classroom—a combination of independent study and long-distance telephone sessions—continued to attract significant numbers of students.

A new program, unique in the country, was developed in cooperation with Continuing Hospital and Health Care Education for hospital and health care facility administrators. It consists of two weeks of intensive on-campus instruction and 11 independent study units. At present, enrollments are restricted to 25-30 students per class. Initiated in July 1969, the program now includes a second-year class, with 24 of the 30 original enrollees returning for the second phase of the program. Hospital administrators from Minnesota, South Dakota, North Dakota, Iowa, Wisconsin, and Canada are enrolled.

Overall enrollments for the biennium declined at the rate of approximately 1,000 registrations per year. More than 300 courses were offered, with active enrollments of 11,911 in 1968-1969 and 10,159 in 1969-1970. The decline may have resulted from economic conditions during this period, but it is also probable that a change in departmental leadership and a period of interim leadership disturbed the continuity and direction of the work of the Department. Increasing enrollments in recent months indicate that the independent study option will continue to be an important service to students.

Plans include an improved curriculum through efforts to update courses and a systematic approach to creation of new course offerings. Use of additional media such as tapes and slides will also be investigated. The increased attention to curriculum will require an additional editor to assist in revising, adapting, and editing courses. At present, the Department is occupying over-crowded space in Nicholson Hall. The editing functions, which require intense concentration, and the typing of courses occupy the same area, with no privacy for editing or conferring with instructors. The testing area is also inadequate and a cause for concern to the more than 1,000 students who take examinations at the Department.

There appear to be national trends toward wider acceptance and use of independent study for on-campus students at all levels. The Department intends to investigate every possibility for extending this instructional service to as many students as possible. Also, increased efforts should be made to inform the public of the independent study alternative through public service information outlets and newspaper, magazine, radio, and television announcements.

The *Department of Counseling* provided counseling services to 6,097 students in 7,665 interviews during the biennium, an increase of 45 percent over the previous two years. In addition, individual program folders were maintained for 3,641 degree and certificate candidates.

The Department, which serves adult students whose educational concerns must be secondary to the demands of career, family, or community, has expanded individual counseling and testing services, offered more services in the evening, strengthened relationships with degree-granting colleges, and continued efforts to keep individual needs paramount in decision-making. Services have been extended in three directions to augment traditional one-to-one counseling relationships. In a successful effort to serve working students more adequately, counselors have gone to larger companies in the Twin Cities area to counsel-on-location to facilitate mail registration; the industries provided office facilities, publicity, secretarial help, time off to the employees, and respect for the confidential relationship of client and counselor. The director and the Women's Continuing Education Program joined forces to offer a seminar, "Guidelines for Women," to aid women considering returning to school or work. Counseling was included as an integral factor in the Glendale and Pilot City proj-

ects; during 1969-1970, a counselor met students in their homes, community centers, and a variety of informal situations.

The growth in services was possible because needs for additional staff and space were met during the biennium. If the Department is to continue growing in quality as well as quantity of contacts, there is need for electronic equipment such as video and audio devices for review of the counseling process. Time and resources are needed to initiate and carry through research projects. Also, while the Department does not need to provide training for graduate students in counseling, and the resources would have to come from outside the Extension Division, the staff feels that a practicum in this adult setting would be beneficial to these students.

The Arts—Several units in the Division make the University's resources in the arts available to the public.

The *Drama Advisory Service* provides consulting services for all phases of technical theatre; provides actors, directors, and technicians to school and community groups; and maintains a loan play library of over 11,000 volumes. During the biennium, nearly 7,400 people throughout the state used more than 16,600 plays and technical books on theatre. Research projects were carried out for the Minneapolis Arts Foundation and the Bush Foundation, and a survey of Minnesota high school theatre programs was conducted in cooperation with the theatre department. Crookston Technical Institute, Visitation Convent, and St. Thomas Academy made use of the consulting services for a variety of artistic and technical projects. Special programs during the biennium included creative dramatics classes in metropolitan area schools, planning and operation of the annual Summer Arts Study Center at Grand Rapids, and administration of the annual American College Theatre Festival for Minnesota and the Dakotas.

The Service has begun to work with major arts institutions in the metropolitan area in sponsorship and development of special programs. The Service assisted in development of the Metropolitan Film Workshop operated by the St. Paul Arts and Science Center, from preparation of the proposal and fund-raising to providing teachers for the classes. The program has become part of the arts enrichment program for the St. Paul and Minneapolis School Systems and was used during summer 1970 by schools and community organizations in ghetto areas of both cities.

On July 1, 1970, the department's name will become Arts Advisory Service, indicative of an anticipated expansion of role in the performing, and potentially the visual, arts. In order to expand, the Service will add staff. Half-time assistants in theatre and music are anticipated for 1970-1971; funding for an administrative assistant is being sought. A more stable support base for the Summer Arts Study Center through a five-year foundation grant is being proposed.

The *Department of Continuing Education in Art* continued its program of courses, lectures, discussions, publications, and circulating exhibitions throughout the state and expanded its program of regional amateur art exhibitions.

Four exhibitions were circulated during the biennium: work by members of the Minnesota Craftsmen's Council, cast sculpture, prints and printmaking techniques, and work by the winners in the regional Southwest Minnesota art exhibitions. The 23 bookings in college art galleries, community art associations, banks, and libraries, drew an estimated attendance of 27,250. Two regional amateur art exhibitions covering a 24-county area were held in Redwood Falls. The programs included one- and two-day workshops in fine arts and crafts, lectures, gallery tours, and jury discussions. Planning and programming were completed for the first regional exhibition covering a 16-county area in southeastern Minnesota to be held in Rochester in July 1970.

Thirty-eight additional programs were held, including credit and noncredit courses, workshops, exhibition judgments and jury discussions, gallery tours, and regional amateur art exhibitions. Total attendance at these was 3,976.

Publications included a survey of professional and semiprofessional art organizations (local, regional, and national) and state cultural resources for the Minneapolis Arts Foundation, a manual on backstrap weaving, and regional exhibition catalogs. Additional publications are planned for the crafts area. Catalogs for the regional exhibitions will be expanded to include directories of art organizations in the areas covered by the exhibition.

The *Department of Continuing Music Education* works with the *MacPhail Center for the Performing Arts*. Enrollments remained stable, with some 1,500 lessons weekly in applied music, dance, and theatre. During the biennium, 20 faculty members were appointed and 19 resigned or were otherwise terminated, leaving a total teaching staff of 92 on June 30, 1970. Newly created was a joint appointment in violin at the Center and string methods and pedagogy in the Department of Music. Center appointments included an instructor in musical trolley (a child's excursion into the arts), a coordinator of elementary and intermediate piano, and a coordinator of musicianship classes.

The preparatory orchestra program was begun and new classes were offered in Carl Orff methods, baton, strutting, and creative dramatics. A Recorder Workshop was jointly sponsored with the Twin Cities Chapter of the American Recorder Society in October 1969. Two nationally recognized figures in piano teaching and pedagogy appeared before the MacPhail Center faculty, with one appearance open to the public. Two workshops for piano teachers and several instrumental institutes were also held during the biennium. The latter program has been under study and reevaluation since the death of its coordinator in spring 1969.

Cooperative research with Continuing Education in Engineering and Science and the 3M Company is seeking satisfactory teaching aids for class piano. Current concentration is on the problem of instant replays, using the Moog Synthesizer, the 3M Sound Slide System, a computer, and visual tape to find a suitable replay that can be slowed down to any speed without distorting the sound.

The first annual MacPhail Center Festival Week, held in May 1970, consisted of recitals and demonstrations. The purpose of the Festival was to present and display the areas of teaching and performance talent found at MacPhail Center.

The Media—Two major departments in General Extension provide instructional services via the media to the general public and to staff and students of the University.

The *Department of Radio and Television* is responsible for radio station KUOM, broadcast television, and closed-circuit television.

KUOM, broadcasting with 5,000 watts on 770 kilohertz, shares this frequency with WCAL, St. Olaf College, in Northfield. KUOM is on the air two thirds of the daytime hours, six days a week, with news, music, public affairs, the arts, adult education, and the Minnesota School of the Air. During 1969-1970, a time of potential unrest on the campus, KUOM attempted to provide the community's most complete and accurate source of information about campus events. Three major events were covered live: Moratorium Day on October 15, 1969; the teaching during Earth Week on April 20-24; and the student strike in May. An entire broadcast day on May 8, the "Day of Reflection," was devoted to strike-related programs. The objective at all times was to present a balanced picture of the events. KUOM provided WCCO radio with a direct feed of all coverage and allowed any radio station to record broadcasts and edit them as desired. The Minnesota School of the Air sold 1,796 teacher's manuals in 1968-1969 and 1,992 in 1969-1970, reaching an audience well over 110,000 students from kindergarten through junior high school.

One of the Department's most important activities during the biennium was application for an FM license. With support from the Department of Speech, the School of Journalism, and members of the student body, the proposal for an FM station was submitted to the University administration. After approval by the Board of Regents, it was submitted to the Federal Communications Commission. Complex legal and technical problems must be resolved, however, before the license application is approved. The station can be on the air six months after the FCC grants a construction permit.

During 1968-1970 the Department produced 425 hours of broadcast television, encompassing 44 individual series. Three were tapes produced nationally; production of the remainder was divided about equally between the Department's own television studios in Eddy Hall and KTCA. Programs included "Ecology 10: The Final Crisis," a three-credit course broadcast on the state educational television network, enrolling 174 students; four documentaries, "Big Brothers of America," "Israel's Exchange Program," "Cambridge State Hospital," and "The Mora-

torium," produced by Alpha Epsilon Rho, honorary radio-TV fraternity; "Mexican Cooking," easily the most popular University series, with over 1,000 requests for recipes; six national experts discussing the inner workings of Congress on "The Congressional Scene"; "24 Times Per Second," on amateur film-making in the Twin Cities; and "Faces of Vietnam," on war veterans (the first program won second prize in the national Alpha Epsilon Rho contest in April 1970); and "China in the 1970's," with experts from several Universities participating.

Closed-circuit television(CCTV), provided by the Department for the entire University, served more than 85,725 persons during the biennium. Day school CCTV courses and enrollments declined in 1969-1970, a break in the upward trend evident since the inception of CCTV in 1962. The number of courses dropped from 47 in 1968-1969, with 40,325 enrollees, to 36 in 1969-1970, with 30,488 enrollees. In both years of the biennium, nine speech laboratory courses were offered, with enrollments of 333 and 363. Courses transmitted to Rochester numbered 25 in 1968-1969 and 26 in 1969-1970, with enrollments of 759 and 1,038. Eight evening extension courses enrolled 421 persons in 1968-1969; six courses enrolled 294 in 1969-1970. Nine short courses and special projects enrolled more than 4,054 persons in 1968-1969; 14 such courses enrolled more than 7,650 in 1969-1970.

Most CCTV lessons are prerecorded in Eddy Hall and played to classrooms on schedule. But increasingly, lessons are played on another department's equipment at its own convenience. With the proliferation of low-cost portable television equipment, this practice is likely to increase. In cooperation with the language laboratory, the Department has been making the sound tracks of televised lessons available to students, with several thousand playbacks counted during 1969-1970. This service will be continued and expanded. On the Rochester interconnection, the Department experimented with one video channel and one channel for a Victor Electrowriter, which transmits written material by telephone line. Success assures more use in the future. The Department also bought a major piece of equipment in 1969-1970, an Ampex 1200B videotape recorder. Of the latest design, it can be converted to color.

Planning for the new Communications Arts building was completed, but is being revised as the lowest construction bid was considerably above the legislative appropriation.

The *Audio-Visual Extension Department* furnishes films, slides, tapes, and other nonprint materials to schools, churches, and other organizations, and offers professional referencing for curriculum needs. A visual products marketing service was added during the biennium. Plans were initiated to provide direct scheduling service for campus use. A professional and a junior librarian were added to the staff, and better inventory record-keeping procedures were established.

In addition to figures shown in the chart, 6,983 reels of film were reviewed by 1,189 persons and recommendations for additions to the collection were made; 608 new titles were added. Need for professional development in the media was demonstrated in 47 workshops and four institutes that attracted 1,426 individuals. The Minnesota Media Institute for Higher Education reached every college in the state. A cooperative Union Index of Films for Minnesota was planned and will be used to generate the Union Catalog as well as subcatalogs for the Minneapolis and St. Paul Public Libraries and the Metropolitan Educational Library Services Association.

Expansion of the professional staff is planned for the next biennium. Additional specialized indices will be designed. For example, an index for fire service

AUDIO-VISUAL EXTENSION — 1966-1970

	1966-1968	1968-1970	% Increase or Decrease
Organizations Served (no figure for 66-68)		10,899	....
States Served (no figure for 66-68)		50	....
Visual Programs Furnished	171,561	258,718	+ 58.0
Prints in Library (end of biennium)	12,859	13,597	+ 5.8
Titles in Library (end of biennium)	7,029	7,824	+ 1.1

training is being developed with the Fire Service Program of General Extension. Other plans include realigning the computer operation of the Department and the Division for additional managerial record-keeping and analysis.

Internal Services

The *Office of Divisional Research* completed a series of longitudinal studies that resulted in two research reports on the Evening and Special Classes program in 1970. The first, "Patterns of Attendance," described the open door function served by the program. For approximately half of the students, registration in evening classes is the first and only contact with the University; for the other half, the program provides a second or supplementary chance to complete a degree or certificate program. Comparisons were made between one-time and persistent registrants and between evening class and day school registration patterns for those students participating in both programs. The second paper, "The Open Door—Revolving," reported the nature of the evening classes program by description of number of courses registered for, number of credits completed, and grade-point averages achieved. Credits and grade-point averages earned in evening classes and day school were compared for those students who had registered in both programs.

An experimental program in "Alcohol and Other Drug Abuse Counseling" provided the opportunity for evaluation of a three-quarter sequence of courses in 1969-1970 and a basis for planning subsequent offerings. Results of a survey of the listening audience for a course on Advanced Shakespeare, reported to the Radio and Television Department, were useful in evaluating and planning radio programming of classroom proceedings. Routine record-keeping of annual enrollment patterns and program characteristics, begun in 1964, continues to serve as a source for annual reports and survey materials requested from many areas.

The *Divisional Relations Department* assisted General Extension departments with promotional activities during the biennium. The Department worked with the University News Service in coordination and production of news releases and with the State Organization Service on lists for direct mail advertising. Two major displays were designed and constructed for use at conferences and public gathering places, including Legislators-Editors-Broadcasters Day. Photographic and art services were made available to departments through contractual arrangements and the establishment of a new student position within the Department. The monthly newsletter was replaced by "The Paper." In 1968-1969, 332 projects were completed for departments; 377 were completed in 1969-1970. The total of 709 is an increase of 30 percent over the 506 completed in 1966-1968.

Feasibility studies are tentatively planned on centralization of printing activities in the department to provide additional management and production services, computerization of mailing lists, provision of promotional news services, and establishment of cold-type composition in the Department.

GRADUATE SCHOOL

Bryce Crawford, Jr., *Dean*

Enrollment and Degrees Granted—During 1968-1969, there were 11,426 students registered in the Graduate School, an increase of 7 percent over the previous year; in 1969-1970 there were 11,321, a slight decrease. Factors in the leveling off included a tightening job market, financial aid reductions, and trimming of enrollment in individual major fields, but it is virtually impossible to weigh these factors with any assurance of accuracy.

Degrees awarded during the biennium included 2,643 master's degrees, an increase of 1.4 percent over the previous biennium, and 1,030 doctoral degrees, an increase of 16.6 percent. The University has now awarded a total of 28,712 master's degrees and 8,421 doctoral degrees. Official candidates for doctoral degrees (students who have passed the oral preliminary examination) numbered 1,416 as of spring 1969 and 1,446 as of spring 1970.

The geographic origin of graduate students showed only slight changes from the last biennium, with 56 percent from Minnesota, 8 percent from surrounding states, 23 percent from the rest of the United States, and 13 percent from abroad.

TABLE I—GRADUATE SCHOOL STUDENTS IN RESIDENCE, 1968-1970

Classification	1968-1969			1969-1970		
	Men	Women	Total	Men	Women	Total
Fall, Winter, and/or Spring	4,809	1,734	6,543	5,082	1,898	6,980
Summer Session only	955	735	1,248	302	178	480
Fall, Winter, Spring, and Summer Session	1,771	667	2,438	1,948	1,246	3,194
Mayo Graduate School of Medicine	735	20	755	649	18	667
TOTALS	8,270	3,156	11,426	7,981	3,340	11,321
Totals, Academic Year (exclusive of Mayo)	6,580	2,401	8,981	7,030	3,144	10,174
Total Individuals in Two Summer Terms (exclusive of Mayo) . . .	2,726	1,402	3,686	2,250	1,424	3,674

TABLE II—GRADUATE DEGREES SOUGHT AND OBTAINED

	No Degree Sought	1968-1969					
		Master's Degrees		Doctoral Degrees		Total Degrees	
		Sought	Obtained	Sought	Obtained	Sought	Obtained
Agricultural Science . . .	10	284	72	209	40	493	112
Biological Science	12	95	17	58	9	153	26
Education	245	1,859 ^a	344 ^b	793 ^c	126 ^d	2,652	470
Duluth	12	209	34	..	..	209	34
Lang., Lit., Arts	28	874	124	326	55	1,200	179
Duluth . . . . .	..	29	2	..	..	29	2
Medical Science	33	761	70	180	25	941	95
Rochester	4	730	19	15	3	745	22
Physical Science	26	955	219	656	109	1,611	328
Duluth . . . . .	..	3	1	..	..	3	1
Social Science	64	1,860 ^e	402 ^f	612	86	2,472	488
Duluth . . . . .	..	15	3	..	..	15	3
Other	5	254	35	204	30	458	65
Rochester . . . . .	..	4	1	2	..	6	1
Twin Cities Total	423	6,942	1,283	3,038	480	9,980	1,763
Duluth Total	12	256	40	..	..	256	40
Rochester Total	4	734	20	17	3	751	23
GRAND TOTAL	439	7,942	1,343	3,055	483	10,987	1,826

^a Includes 74 seeking certificate of Specialist in Education.

^b Includes 20 receiving certificate of Specialist in Education.

^c Includes 30 seeking Ed.D. degree:

^d Includes 5 receiving Ed.D. degree.

^e Includes 1 seeking Specialist Certificate in Library Science Teaching.

^f Includes 1 receiving Specialist Certificate in Library Science Teaching.

TABLE II (Continued)

1969-1970							
	No Degree Sought	Master's Degrees		Doctoral Degrees		Total Degrees	
		Sought	Obtained	Sought	Obtained	Sought	Obtained
Agricultural Science . . .	10	223	50	239	65	462	115
Biological Science	10	78	14	100	6	178	20
Education	179	1,513*	338 ^b	1,099 ¹	148 ¹	2,612	486
Duluth	19	214*	13	..	..	214	13
Lang., Lit., Arts	54	760	135	468	41	1,228	176
Duluth	1	52	2	..	..	52	2
Medical Science	159	442	78	426	34	868	112
Rochester	162	492	29	9	2	501	31
Physical Science	35	652	194	798	119	1,450	313
Duluth . . . . .	..	15	1	..	..	15	1
Social Science	80	1,612	395	870	95	2,482	490
Duluth	1	24	1	..	..	24	1
Other	10	236	50	275	37	511	87
Rochester . . . . .	..	3	..	1	..	4	..
Twin Cities Total	537	5,516	1,254	4,275	545	9,791	1,799
Duluth Total	21	305	17	..	..	305	17
Rochester Total	162	495	29	10	2	505	31
GRAND TOTAL	720	6,316	1,300	4,285	547	10,601	1,847

* Includes 160 seeking certificate of Specialist in Education.

^b Includes 28 receiving certificate of Specialist in Education.¹ Includes 74 seeking Ed.D. degree.¹ Includes 9 receiving Ed. D. degree.^{*} Includes 13 seeking certificate of Specialist in Education.

TABLE III—GEOGRAPHIC ORIGIN OF GRADUATE STUDENTS

1968-1969					
	Minnesota	Economic Area		Foreign	Total
		Minnesota	Other U.S.		
Agricultural Science	195	56	113	139	503
Biological Science	72	23	50	20	165
Education	2,091	230	468	108	2,897
Duluth	185	13	19	4	221
Lang., Lit., Arts	684	112	342	90	1,228
Duluth	27	2	..	..	29
Medical Science	426	95	272	181	974
Rochester	251	52	286	160	749
Physical Science	668	110	393	466	1,637
Duluth	2	..	..	1	3
Social Science	1,452	200	556	328	2,536
Duluth	14	1	..	..	15
Other	195	41	170	57	463
Rochester	3	1	2	..	6
Twin Cities Total	5,783	867	2,364	1,389	10,403
Duluth Total	228	16	19	5	268
Rochester Total	254	53	288	160	755
GRAND TOTAL	6,265	936	2,671	1,554	11,426

TABLE III (Continued)

	1969-1970				Total
	Minnesota	Economic Area	Other U.S.	Foreign	
Agricultural Science	191	45	102	134	472
Biological Science	97	15	55	21	188
Education	1,996	168	489	138	2,791
Duluth	211	9	11	2	233
Lang., Lit., Arts	752	98	361	71	1,282
Duluth	49	1	3	..	53
Medical Science	477	87	292	171	1,027
Rochester	237	45	252	129	663
Physical Science	568	80	373	464	1,485
Duluth	7	3	1	4	15
Social Science	1,496	166	578	322	2,562
Duluth	23	1	..	1	25
Other	253	39	171	58	521
Rochester	2	1	1	..	4
Twin Cities Total	5,830	698	2,421	1,379	10,328
Duluth Total	290	14	15	7	326
Rochester Total	239	46	253	129	667
GRAND TOTAL	6,359	758	2,689	1,515	11,321

Program Development—During the biennium, a master's degree with a major in geo-engineering and a professional Master of Engineering degree were established on the Twin Cities campus. Ph.D. degrees with majors in library science, geophysics, Italian, and physical education, as well as master's and Ph.D. degrees with majors in plant breeding, animal physiology, South Asian languages, and ecology, were also approved. A supporting program in comparative ethnic and racial studies was developed for use in the established disciplines. In the College of Education master's program, the major in curriculum and instruction was replaced by majors in elementary education and secondary education; in the Doctor of Education (Ed.D.) degree program, majors in physical and industrial education were approved. Specialist certificates were established in distributive, business, and mathematics education and in general curriculum supervision.

Majors in analytical, inorganic, organic, and physical chemistry were replaced by a single unified major in chemistry. The master's degree with a major in area studies was discontinued, as was the Ph.D. with a major in international relations; the master's degree program in the latter was retained. The master's degree with a major in Sanskrit was discontinued and the emphasis included in the new major in South Asian languages. New programs offering the master's degree in computer and information sciences and in electrical engineering through closed-circuit television at Rochester were approved. Developments at the University of Minnesota, Duluth, included establishment of a master's degree with a major in geology and specialist certificates in education in elementary, secondary, and general school administration. Modifications paralleling those in the Twin Cities were effected in the education and chemistry master's programs at Duluth.

The general Graduate School foreign language requirement was abolished, and the requirement is now left to the discretion of the individual major fields. The Graduate School records only the foreign languages in which proficiency is to be certified by the language departments.

Some transfer of credit from other graduate institutions was authorized by the Executive Committee. Students are now permitted, on the recommendation of the graduate faculty in their fields, to offer up to nine quarter-credits taken at

other graduate institutions for the master's degree. Although this had been possible in the past for more advanced degrees, the authorization was a considerable liberalization in policy at the master's level.

Organization—The Graduate School took a number of steps during the biennium to improve communications and achieve greater participation by the graduate faculty in policy development and decision-making. Graduate faculty in the major fields were asked to designate directors of graduate study to serve in a liaison capacity with the Graduate School. Quarterly meetings of the directors, deans of the Graduate School, and members of the Executive Committee were instituted in fall 1969. With the Senate Committee on Educational Policy, the Graduate School in 1969 appointed a task force to consider its internal operations. The recommendations of that committee, which were presented in spring 1970, are scheduled for implementation in 1970-1971. In addition, two ad hoc committees were appointed by the Graduate School, one to consider problems related to admissions, and the other to evaluate doctoral programs.

In spring 1970 the Graduate School began publishing a quarterly newsletter, *G.S. Form 7000*, which has proven effective for disseminating information to both the graduate faculty and students.

Higher Education Coordinating Commission (HECC)—In 1969 the Graduate School, as part of the University system, and the other state systems of higher education joined with HECC and its Curriculum Advisory Committee in the ongoing review of proposals for development and expansion of graduate programs in Minnesota. All preliminary proposals are submitted to HECC for its information, and all final proposals that have been approved by the Graduate School Executive Committee are submitted for review and recommendation before being transmitted to the Board of Regents. HECC has provided detailed guidelines for use in drawing up new programs. The relationship with HECC has been productive and will in the future provide for more comprehensive and formal evaluation of developing graduate programs in the state.

Graduate School Research Center—The mission of the Graduate School Research Center was broadened during the biennium, and significant additions in personnel were made. Two new major divisions, the Analytical Studies Division and the Sponsored Programs Division, will employ two new staff members as assistant directors. The Analytical Studies Division is concerned with allocating and accounting for the use of University resources. A cost of instruction study was the principal project of this unit during the biennium. In the next biennium major studies will be concerned with the demand for higher education in the state and a student demand matrix for the University. Additional efforts will be made to improve the study on costs for use by central and collegiate-level administrators.

The Sponsored Programs Division investigates potential sources of financial support for proposed research and training programs and serves as a central assembly point for all grant proposals. It reviews and analyzes each proposal for its implications for staffing, adherence to administration policy, and requirements in terms of University facilities and equipment, and publishes an annual "Inventory of Faculty Research." During the next biennium the services of this Division will be extended to faculty on the coordinate campuses. Approximately 15 people were added to the staff during the biennium to handle the increasing responsibilities of the Center.

The director of the Research Center coordinated the efforts of the consulting firm of Cresap, McCormick and Paget in their study of the University's administrative computer systems and their recommendations for changes to improve services to students, collegiate units, and administration. The first draft of their report has been completed and is being reviewed by the units involved.

Graduate School Research Funds—A summary of the allocations made from research funds administered by the Graduate School appears in Table IV. During the biennium projects were supported in the following fields: anthropology, biology (Duluth), botany, business administration (Duluth), chemistry (Duluth, Morris, and Twin Cities), child development, civil engineering, classics, East Asian languages, elementary education, English, genetics and cell biology, geography, history (Morris and Twin Cities), journalism, law, Middle Eastern languages,

pharmacognosy, physical education, physics, political science, psychology (Morris), Slavic languages, sociology (Duluth and Twin Cities), Spanish and Portuguese, speech, student affairs, and zoology. Faculty summer research appointments numbered 22 in 1969 and 24 in 1970.

TABLE IV—GRADUATE SCHOOL RESEARCH FUNDS, 1968-1970

	Appropriation		Number of Grants Made	
	1968-1969	1969-1970	1968-1969	1969-1970
General Research	\$ 140,000	\$ 185,000	53	59
Overhead Reserve Research ...	200,000	200,000	27	28
Medical and Cancer Research .	140,000	160,000	60	71
Minnesota Institute of Research	44,000	Discontinued	15	..
Nonmedical Research	31,000	31,000	35	46
NSF Institutional Grant	122,352	106,437	14	9
Biomedical Sciences Support Grant (NIH)	100,649	103,098	20	15
Rockefeller Foundation, Income from Investments, and Institutional Allowances from NASA, NIH, NSF, and NDEA Fellowship Programs .	306,548	254,747	84	85
TOTAL	\$1,084,549	\$1,040,282	308	313

In 1969 a special program of support was initiated for graduate students, some of whom would not be admissible according to conventional criteria. For 1969-1970, \$30,000 was set aside for this program.

Graduate Fellowships—The biennium was a period of increased Fellowship Office involvement and activity, characterized by an endeavor to continue providing advice and aid to students in the face of rapidly declining funds and disappearing programs. The humanities continued to be most affected by the severe cut-backs in NDEA Title IV programs, with a 50 percent decrease in the number of new awards made during the biennium. The number of Woodrow Wilson Fellowships decreased by two thirds, not substantial in actual numbers but indicative of the state of privately funded awards. The sciences fared better than the humanities but showed declines compared to the generous grants of previous years. For example, the number of National Science Foundation trainees has continued to decrease, with new awards barely compensating for expiring ones and definite prospects of discontinuation altogether. The National Aeronautics and Space Administration Traineeships were discontinued during the biennium, and the National Institutes of Health Predoctoral Fellowships were discontinued for 1970-1971. With the greater emphasis on loan programs at the federal level and the reductions in fellowships and scholarships, it is evident that other funding sources are sorely needed. A summary of fellowship data for the biennium is presented in Table V.

The efforts of the Fellowship Office to help deserving students are reflected to a limited degree in the area of Graduate School Special Grants and Quarterly Tuition Scholarships. These, though helpful in some isolated cases, hardly begin to meet the needs that the Office has seen demonstrated. One facet of the problem that deserves special consideration involves the Ph.D. candidate who needs a small grant (\$100-\$500) to help defray the costs of his dissertation year. Many students could be helped toward more timely completion of their dissertations if more such funds were available. Such grants have been made from the Graduate School Special Grant Funds, but prospects for 1970-1971 are not bright.

There was increased activity in the identification, recruitment, and support of disadvantaged students during the biennium, and the Graduate Fellowship

TABLE V—GRADUATE FELLOWSHIPS AND GRANTS AWARDED, 1968-1970

	1968-1969	1969-1970
Funds Controlled by Outside Sources:		
National Science Foundation		
Graduate (Total)	8	10
Traineeships (Total)	88 (36 New)	80 (25 New)
Summer (Total)	16	13
Science Faculty (Total)	2	2
National Defense Education Act		
Title IV (New 3-Year Awards)	45	38
Title VI (Total)	14	14
Higher Education Act Title V	5	6
National Aeronautics and Space Administration		
Traineeships	5	5
National Institutes of Health		
Predoctoral Fellowships	18	18
Fulbright-Hays Grants	6	2
Woodrow Wilson Fellowships	1	3
Danforth Fellowships	5	5
University Controlled Funds:		
Graduate School Fellowships	38	38
Graduate School Special Grants	31	54
Quarterly Tuition Awards	109	124
Foreign Student Tuition Grants	90	90
McKnight Theatre Fellowships	10	9

Office participated in two modest programs in 1969-1970. Increased support from the University and other sources will involve the Office both in administering University funds for such students and in serving as an information source for outside funds.

Special Visitors—During the biennium, 21 visiting scholars were awarded honorary fellowships. The United States was represented by 6 fellows, Africa by 1, Asia by 3, Canada by 2, and Europe by 9. Their areas of study included 12 fields of specialization in the Graduate School.

Mayo Graduate School of Medicine—The total number of Ph.D. degrees awarded to Mayo graduate students increased to 8 and M.S. degrees increased to 52 during the biennium. In January 1969, a Graduate Degree Committee was established in the Mayo Graduate School, with responsibility for reviewing all thesis proposals and improving graduate degree programs. Mayo faculty reached a record number of 456.

Increasing individual fellowship stipends in each of the past two years resulted in expenditures of \$4.2 million in 1968, \$4.5 million in 1969, and \$5.0 million in 1970 in support of graduate study. Extramural grants for educational programs, mostly from the National Institutes of Health, totaled \$730,000 in 1969 and \$661,000 in 1970.

In addition to the graduate programs, undergraduate elective programs were provided each year to more than 100 students from some 95 medical schools in North America. The Mayo Graduate School cooperates with the Department of Pediatrics of the Medical School in offering a six-to-twelve-week elective program for selected students.

Hormel Institute—Basic support for the Institute is provided by the Hormel Foundation, but in recent years about three fourths of the budget of approxi-

mately \$1 million has been obtained from outside agencies, mainly federal agencies and especially the National Institutes of Health. Located at Austin, the Institute employs approximately 100 employees, including approximately 15 part-time student employees from Austin State Junior College. During the biennium, the Institute continued its coordinated investigations of the chemical and biological properties of lipids, with some shift in emphasis from studies of physical properties and organic chemistry to studies of biosynthesis, metabolism, and functions of lipids in living systems in normal and abnormal biological states.

Several unusual projects deserve special mention. In a study on blood coagulation in relation to dietary and tissue lipids and lipoproteins, three different lipid materials that are active in blood coagulation were isolated, two from pig liver and one from pig adipose tissue. Hormel Institute personnel will collaborate with the University of Oslo, Norway, to determine the identity and structure of these factors. Another project, the development of a breed of miniature pigs for use as experimental animals, was continued during the biennium, with two important changes: ownership of the miniature pig herd was transferred from the Hormel Foundation to the University of Minnesota, and the size of the pigs was reduced sufficiently to warrant production and sale of pigs under the name Hormel PIGmeePIG as a service project. Another continuing public service activity that involves some research is the Lipids Preparation Project, involving production and sale on a nonprofit basis of various highly pure lipid substances for use in lipid research in other institutions.

Although the Hormel Institute is primarily a research-oriented unit, it also contributes to the Graduate School's educational function. Some academic members of the staff are affiliated with departments on the Twin Cities campus and as members of the graduate faculty serve as advisers to graduate students. Also, there are usually 10 or 12 carefully selected postdoctoral students who join the Institute staff for six months to two years for specialized training in research techniques in the chemistry and biochemistry of lipids. Such temporary employees come from all parts of the world; in most cases during the biennium, they were from the United States, Japan, or European countries. Occasionally, established scientists visit the Institute for shorter periods to be trained in a single specialized technique.

Water Resources Research Center—Expenditures for the biennium were \$228,800 for fiscal year 1969 and \$295,300 for fiscal year 1970. The Center financed 14 research projects involving 13 faculty members and 37 student research assistants with funds from the U.S. Department of the Interior. These research projects were concerned with productivity of lakes, watershed hydrographs, water-quality management institutions, economics of water quality control, computer programs in hydrology, water resources administration, eutrophication in Lake Superior, pollutional history of lakes, overfertilization of surface waters, mist irrigation, soil water movement, participatory ecology, and Mississippi River ecology. The Center is supporting research projects at St. Mary's and Gustavus Adolphus Colleges and at Bemidji, St. Cloud, and Winona State Colleges. Since the Center was established in 1964, 28 new courses bearing on water resources have been developed at the University.

Graduate Student Activities—The Graduate Student Organization, while slow to develop in many areas, was sufficiently well organized to provide effective representation on the Executive Committee of the Graduate School during the biennium. In addition to contributing to discussions, the students recommended a change in the policy on binding of master's theses, which was adopted, and requested consideration of graduate student registration in St. Paul, which was expected to become effective by the end of 1970.

The Association of Student Teaching and Research Assistants (ASTRA) continued to expand its membership and activities during the biennium. Grievance procedures for the handling of employment problems between assistants and their departments were developed and transmitted to the graduate faculty for implementation. ASTRA also worked with the Graduate School in requesting tuition changes and with the Health Service to obtain coverage over the summer for teaching and research assistants not registered for the summer terms. With the cooperation of the Graduate School, ASTRA is now working to encourage early notification by the departments of reappointment or promotion for assistants.

OFFICE OF INTERNATIONAL PROGRAMS

Willard W. Cochrane, *Dean*

Change and Development—A general restructuring of the Office of International Programs was approved by the Board of Regents in spring 1970. Dean Willard W. Cochrane, who has headed the Office since 1965, resigned his position effective July 1, 1970, to resume teaching in the Department of Agricultural Economics. William E. Wright, who has served as associate dean in the Office since fall 1969, will succeed Dean Cochrane, assuming the title of associate to the vice president, academic administration, for international programs.

As a result of the restructuring, the Office will become an integral part of the Office of the Vice President for Academic Administration. Since its establishment in 1963, the Office has been administratively responsible to the vice president, but the restructuring makes it clearer that the work of the Office crosses collegiate lines and is responsive to the entire University community. The change in title from dean to associate to the vice president follows University policy in restricting the title of dean to positions in which the dean heads a separate faculty.

In 1969 a half-time position of coordinator for overseas study was created in accordance with recommendations in a 1968 report evaluating the development of international programs at the University. Work was begun in fall 1969 on coordination of overseas study programs and on encouragement of University units to organize new overseas programs. The Office of International Programs, which previously focused primarily on faculty-oriented and technical assistance programs, will now give equal emphasis to development of overseas programs for students.

In 1969 creation of the Population Studies Center was approved. The Center joins the previously established Center for Comparative Studies in Technological Development and Social Change and the Economic Development Center in promoting interdisciplinary research and cooperation in international problems.

The University of Minnesota was accepted in September 1969 as the fifth member of the Midwest Universities Consortium for International Activities (MUCIA). This cooperative organization, created in 1964 through a grant from the Ford Foundation, works to render more effective technical assistance abroad and to strengthen international emphasis and gain maximum academic benefit on the member campuses from overseas activities. Minnesota faculty members join other MUCIA universities in staffing major technical assistance projects abroad and serve on MUCIA advisory councils dealing with problems of population, education, medicine, institution-building, and international communication. During the biennium, a number of Minnesota faculty members and graduate students obtained grants under the MUCIA grant program.

In 1969, the University completed the fifth year of the five-year \$1.25 million grant from the Ford Foundation. The Foundation has allowed an additional two years for expenditure of remaining funds.

Campus-Based Research and Study—Grants received by the University during the biennium permitted the development of several new international programs.

In June 1970, a five-year \$800,000 grant was received from the U.S. Agency for International Development (AID) for use by the Economic Development Center and the Departments of Economics and Agricultural and Applied Economics. The grant is being used to implement two coordinated programs intended to strengthen the teaching, research, and service capabilities of the University in problems of agricultural policy and economic development and will also permit one new faculty member qualified in problems of development to be added to each department.

The Center for Comparative Studies in Technological Development and Social Change received a three-year \$200,000 grant from the Ford Foundation in 1969. The grant will be used to expand studies of rapid urbanization into a system analysis of regional development. The growth of cities will remain important in the Center's research, but attention will also be directed to the effect of modernization on the surrounding countryside. Early in 1970, the Center also received a grant from the National Science Foundation for exploration, development, and possible modification of certain aspects of mathe-

matical automata theory that appear to provide a class of formal mechanisms useful as models in organizational problem-solving.

During 1970, the Population Studies Center moved ahead with plans to request substantial outside funding for an overseas base in Nigeria for studies in population problems and possible institution of family-planning programs. Members of the center went to Ibadan, Nigeria, in March 1970 to study the feasibility of cooperative work between the University of Ibadan and the University of Minnesota.

The University received a \$21,500 grant from MUCIA in June 1970 for use by the Harold Scott Quigley Center of International Studies. Funds will be used to establish an interdisciplinary research project on conflict as a factor in development and to strengthen the international relations graduate program.

Requirements for Further Development—To continue to promote an international outlook at the University, the Office of International Programs needs further support for such activities as faculty research and library enrichment. The Small Grants Research Program, organized with funds from the 1964 Ford grant, has been supplemented with approximately \$20,000 in University funds for use in the 1970-1971 academic year; this Program will require additional funds during the next biennium to operate at its current level. The new study-abroad programs for graduate and undergraduate students will especially need increased financial support.

Overseas International Programs—During the biennium, the two projects in Chile and the agricultural education project in Brazil were terminated. University faculty members worked in Nepal, India, Argentina, Thailand, and Africa on agricultural and economic development. Work was continued in the technical assistance project in Tunisia, and contracts were signed for projects in South Vietnam and Morocco.

Federal University of Paraná, Paraná, Brazil—The University, in agreement with the Ford Foundation, terminated its agricultural education project at the Federal University of Paraná on June 30, 1969. The project, begun in 1966 and scheduled to continue through 1971, was intended to prepare curricular materials and train teachers of agriculture for junior and senior high schools, with integration of the program into the educational development plans of the state of Paraná. Termination was forced by several problems, including conflict between the University of Paraná and the state government of Paraná.

University of Concepción, Concepción, Chile—The cooperative program between the University of Minnesota and the University of Concepción was terminated December 31, 1969. The program, funded by the Ford Foundation, was directed at development of basic academic programs, improved preparation of teaching staff, remodeling of organizational structures in academic and business administration, and development of a modern centralized library at the University of Concepción. Political unrest at the University of Concepción prevented programs from developing satisfactorily, and continuation of the grant was not requested.

Despite the problems, some positive results were achieved during the biennium. Of the 18 University of Concepción faculty members granted fellowships for long-term study abroad, seven returned with advanced degrees, two completed degree programs following official termination of the project, and one is nearing completion. Minnesota faculty members who worked in Concepción gained valuable experience and succeeded in interesting the Chilean faculty in new teaching methods and perspectives. The most notable success was achieved in the library. The library director earned a graduate degree in library science with program support, and secondary library personnel were trained through short-term work programs abroad and in-service courses. Funds for acquisitions were used to supplement reference holdings, and an efficient system of cataloguing was introduced. Several of the University's 16 branch libraries were consolidated as planned; eventually all will be combined in the new library currently under construction.

Agricultural Production Education, Chile—In March 1970, the Ford Foundation awarded a terminal grant of \$113,000 for completion of the agricultural production project Minnesota has successfully conducted in Chile for the past six years. The grant permitted Minnesota faculty members to complete their

tours of duty in Chile, to end July 1, 1970, and will finance continuation of the fellowship program under which four Chilean students are studying in the United States.

The project, in which Minnesota cooperated with the Chilean Instituto de Investigaciones Agropecuarias (IIA) and the Servicio Agrícola Y Ganadero (SAG), was directed at developing a corps of production specialists capable of transmitting technical information to farmers. In 1968, an agreement was reached to expand Minnesota's activities and increase the number of agricultural production specialists to be trained. Eight production specialists, whose positions were funded by IIA, continued work in cooperation with 12 professional agriculturalists financed by SAG. Two crop specialists were added to the Santiago agricultural extension center staff, dairy and farm management specialists were added to the Chillán staff, and personnel for farm management, communications, and dairy and forage production were recruited for the Temuco center. A dairy-beef specialist, a crops and soils specialist, and a university adviser were added to the Minnesota staff. Three Chilean specialists in agricultural communications were also appointed and trained in 1968, permitting a rapid growth in the number of agricultural publications available to the public. IIA production education and research personnel issued 46 publications, and more than 70 agricultural articles were published during the year in Chilean newspapers, the primary source of information for most Chilean farmers.

Five national agricultural production programs were given priority in 1968-1969: swine, dairy and beef, corn, wheat, and farm management. Information obtained from research stations, universities, and other sources was organized for use by professional agricultural advisers and farmers. Production specialists and farm advisers were trained in the channeling of technical information to farmers through workshops, demonstrations, publications, and training sessions. In the Chillán area, special effort was directed to a wheat production program that included information on planting dates, varieties, fertilizer, weed control, and irrigation. In the Temuco area, Minnesota and Chilean staff completed a program in milk and meat production that included the training of regional SAG personnel. At Chile's Catholic University, courses in principles of agricultural extension, communications, and diagnostic techniques were introduced and work progressed toward development of short courses.

Economic Support Program, India—University economists and agricultural economists have been involved informally since 1969 with a Ford Foundation program providing economic support to various agencies of the government of India. Two faculty members are in India working on problems of agricultural development and economic analysis and on an intensive evaluation of agricultural programs.

Economic Development Center, Katmandu, Nepal—During 1968, discussions began between the University of Minnesota, Duluth, and the Ford Foundation regarding establishment of a Center for Economic Development and Administration at Tribhuvan University in Katmandu. The new Center would serve as a source of information and skill in national planning and development and would train staff for the national planning commission. A University of Minnesota faculty member visited Tribhuvan University in an advisory capacity in 1969, and another is currently serving in Katmandu as a project specialist.

Agricultural Consultant, Argentina—The University is continuing its cooperative program with the Ford Foundation to develop the agricultural economist profession in Argentina. A University faculty member serves as consultant to the Ford Foundation's agricultural programs in Argentina and supervises the work of Argentinian students in the United States.

Overseas Teaching and Research Program—In 1968, the Rockefeller Foundation awarded the University a five-year grant of \$300,000 to enable social science faculty members to accept teaching and research positions in overseas universities being assisted by the Foundation. Under this grant, two Minnesota faculty members are teaching and conducting research in East African agricultural development at University College in Dar es Salaam, Tanzania; a Minnesota staff member is serving as a short-term consultant in cartography in Kenya, Uganda, and Tanzania; and two faculty members are working with Rockefeller

agricultural programs and assisting in development of agricultural economics at Thomasart and Kasetart Universities in Bangkok, Thailand.

Technical Assistance, Tunisia—Marked progress was achieved in this project, begun in 1967. Early in 1970, the Five-Year Work Plan for the period April 1, 1970, to March 31, 1975, was approved by the government of Tunisia, AID, and the University of Minnesota. The Plan emphasizes institution-building and training of professional Tunisian agricultural economists and outlines a research plan for the developing Bureau of Economic Studies. Under the Plan, 11 professional agricultural economists will be working in Tunisia by 1974. Five Tunisian students are now working toward master's degrees in agricultural economics at the University of Minnesota.

A new Bureau of Plan and Agricultural Development was created in the Ministry of Agriculture in March 1970 to conduct studies on planning of agricultural development and investment programs, to appraise investment projects, and to analyze the effects of the agricultural situation on the Tunisian economy. Minnesota will assist the Ministry in developing research expertise.

During the biennium, the Minnesota team conducted research in several agricultural sectors through the Bureau of Economic Studies. An economic analysis of the production, marketing, and pricing of wheat in Tunisia and studies of alternative cereal production policies were completed. Research was begun on economic policies and marketing of commodities to study channels of distribution, marketing efficiency and costs, and price spreads between farmers and consumers. Work begun on the economic analysis of investment projects will continue in the next biennium; the first stage, establishment of standardized concepts and formats for the analysis of time streams, was completed in 1969. A study was made of a major irrigation project, and research was begun in cooperation with the FAO farm management training project on the management of state farms and cooperatives. Other ongoing projects concern agricultural labor and employment, livestock, and olive oil production and marketing.

The University of Minnesota is also assisting the University of Tunis to develop its School of Economics. Five visiting American professors presented lectures and seminars during the biennium as part of the effort to strengthen the academic program. Nine Tunisians currently working toward doctorates in economics at U.S. universities will assume faculty positions in the School upon completion of their studies.

Veterinary Assistance, South Vietnam—The University entered an 18-month contract with AID in July 1969 to improve and develop animal health care in South Vietnam. Diseases such as rinderpest and hemorrhagic septicemia in cattle and buffalo, hog cholera, and Newcastle disease in poultry are estimated to cause an annual loss of \$35 million to the South Vietnamese economy. Minnesota's contract, renewable on a yearly basis, is directed at instituting a national veterinary medical service, to include research on diseases of economic importance and programs for prevention, diagnosis, and control of diseases and for veterinary personnel training.

Because livestock in Vietnam serve not only as food but also as the major power source for cultivation of crops, AID and the Vietnamese Ministry of Land Reform began a cooperative program to expand livestock production in 1969. The resulting increase in livestock created a critical need for greatly improved and expanded veterinary facilities and for more veterinary personnel. College of Veterinary Medicine faculty members are currently engaged in training mobile vaccination teams in prevention of epidemics and animal health teams in organization of animal disease control campaigns and communication of preventive measures to livestock raisers. Faculty members work with animal health teams in the provinces to demonstrate techniques directly, and programs have been initiated to educate livestock raisers in the importance of animal health care. Faculty members also act as animal health and production advisers to the Vietnamese animal husbandry chiefs and are available as consultants to the AID agricultural and livestock advisers in Vietnam.

In research on the causes and prevention of animal disease epidemics, Minnesota staff are working to establish systems for the recording of vaccinations and the reporting and diagnosing of diseases. They are also cooperating in research on the isolation of veterinary vaccines, assisting the staff of the National

Institute of Bacteriology with quality control and improvement in vaccine storage and distribution.

Plans for the future include improvement and intensification of training programs and sending of Vietnamese students abroad to study animal husbandry, nutrition, and veterinary science. Further studies are being planned in live-stock feasibility, ecology, and pathogenesis of animal disease. Progress achieved in the program so far indicates the contract may be continued for several years.

Technical Assistance, Morocco—The government of Morocco expressed interest in 1968 in collaboration of its Institute of Agronomy, Hassan II, with the University of Minnesota and the University of Louvain, Belgium, in an AID technical assistance program. In cooperation with France, Morocco is seeking to develop Hassan II to alleviate the two major barriers to Moroccan agricultural development: lack of locally applicable production technologies and lack of trained manpower. Hassan II will provide a six-year program leading to an agricultural engineering degree.

Under a contract signed with AID and the government of Morocco in June 1970, the University of Minnesota, in cooperation with the University of Louvain, will conduct research and develop instructional programs in soils and plant sciences for students in their fifth and sixth years at Hassan II. Minnesota has also agreed to help develop a technical library and a program of English instruction. Research will be conducted in areas presenting significant problems in Moroccan agriculture. Initial soil research will deal with problems of nitrogen fertility and plant science research with cereal breeding and pathology. Advanced Moroccan students will participate in the planned research. In 1971, qualified students will be selected for graduate training at American universities. Minnesota specialists in soil science, plant pathology, and plant breeding are scheduled to be sent to Morocco, and project leaders at the University of Minnesota will provide technical supervision for both research and teaching activities. The project is expected to run seven to ten years.

LAW SCHOOL

William B. Lockhart, *Dean*

Student Body, Faculty, and Facilities—An outdated and inadequate physical plant continued to set finite limits on the Law School's possibilities for growth and development during the biennium. Despite increasing numbers of applications for admission, it was necessary to hold the student body at relatively the same size as in the preceding biennium and to deny a legal education to an increasing number of Minnesota residents. In 1967-1968, 607 students were enrolled; in 1969-1970, there were 593 students in residence. At the close of the biennium applications for the 1970-1971 academic year were running far above any year in recent history, and it was again necessary to raise the standards for admission. The single greatest need of the Law School, if its potential to the state is to be realized, is for a facility adequate for its mission.

There was some encouragement with respect to faculty strength. The Law Alumni Association's fund drive, "The Partnership in Excellence," that was begun in 1968 was highly successful. With the additional financial resources from the campaign, it was possible to bring to Minnesota on a visiting basis three of the outstanding law professors in the country. At the close of the biennium it appeared that the program would continue to add prestige to the faculty and that prospects for filling the Chairs on a permanent basis were good. Another development was the fulfillment, at least in part, of the Law School's earlier dedication to interdisciplinary programs as called for in the long-range plan. Professors Irving Tallman, sociology, and Herbert Mohring, economics, were appointed to the faculty on split appointments and offered courses in their areas of specialty. Regents' Professor Paul Meehl and Professor Carl P. Malmquist, also adjunct professors of law, presented seminars in psychology, psychiatry and the law, jurisprudence, and negotiation.

The Law School, recognizing the serious need for qualified leaders in ethnic minority groups, made special efforts to increase enrollment from these groups.

Results in the first several years were not as good as might have been hoped, but were, nevertheless, encouraging. At the end of the biennium, eight minority group members were enrolled.

The Law School faculty continued its support of the University's Continuing Legal Education program, with many of its members taking part in the programs presented to the practicing Bar.

Long-Range Planning—Planning and limited implementation continued for increased interaction and collaboration between the Law School and other units of the University, for more varied instruction for the law student, for a Center for the Study of Law in Society, for increasing participation by law students in the provision of legal services to the poor, for an expanded program of international legal studies and involvement in legal problems of developing countries, and for an expanding continuing legal education program and increased participation of the Bar in the functions of the Law School. Effective implementation of much of this program must await the new Law School building.

The Library—An increasing shortage of space and insufficient funds for acquisitions and additional personnel affected the library to a serious degree during the biennium. Student and faculty increases are mainly responsible for the reduction of space available for the library collection, seating of library patrons, and offices for the staff. Creation of new faculty offices reduced shelf space to the extent that large numbers of books had to be eliminated from the current collection and placed in storage. Expansion of faculty and student activities into new areas of law necessitated increased acquisitions, which, in addition to the normal growth of the collection, accelerated the strangulation of the library in its limited space.

The same developments necessitate additions to the overworked staff. Funds for such additions, urgently requested, have not been granted. Some additional library staff has been made available, but not enough to meet the accelerating needs. Services will necessarily deteriorate if more personnel and space are not added in the near future.

Curriculum, Training, and Research—Under a Ford Foundation grant of approximately \$250,000, six members of the faculty undertook, during the biennium, a three-year study on problems of law and society. Areas to be covered include custody adjudication incident to divorce, social welfare programs, defender social service unit (the role that can be played by defense counsel in the correctional process), juvenile court procedures, and police patrol practices. At the close of the biennium all projects were well under way.

Publications by the faculty in many areas of the law exceeded 20 during the biennium.

Additional curriculum emphasis was placed on legal problems stemming from pollution. A new course in environmental regulation was added, as were seminars in American Indian law and consumer protection. Lack of physical space in the building prohibited full implementation of earlier plans for smaller classes, more seminars, and more individualized instruction. The space problem even hampered placement of graduates because of the lack of small rooms for interviews with potential employers.

Perhaps the greatest cocurricular advance was made in the field of clinical education. A grant from the Ford Foundation's Council on Legal Education and Professional Responsibility made possible an expanded clinical program and temporary appointment of a clinical professor of law. The Legal Aid Clinical Program has more than 250 student participants, five student directors, and the clinical professor of law as a full-time adviser. Students work in a carefully structured program under the guidance of practicing attorneys in various courts, aiding inmates of the Sandstone Federal Prison and writing criminal appellate briefs for the state public defender and attorney general. The student Legal Aid Clinic has established two civil intake offices—one in the West Bank area and another on the East Bank. Student interest, participation, and enthusiasm are extremely high.

One of the more important educational values of the Clinical Program has been the experience gained by students in the art of counseling. Scores of supervised interviews with members of the University community who have

legal or quasi-legal problems and who cannot afford an attorney are conducted each day of the school year, giving the students a unique opportunity to begin development of expertise in a phase of law practice that will concern them throughout their careers.

Office of Delinquency Control—Attached to the Law School, this Office is responsible for a variety of delinquency prevention and control projects developed and administered by an all-University committee. In addition to providing summer institutes for juvenile court judges, juvenile probation and parole officers, and police personnel assigned to work with juveniles, the Office has developed two new experimental programs over the past year. One, the Pre-Hearing Information Service operated in cooperation with the Hennepin County Attorney's Office, is programmed to provide social background data on selected offenders to determine whether any could be safely screened out of the criminal justice system prior to trial. If so, a large reduction in the demands placed upon the over-burdened court and correctional systems and great savings to the public and the individual could result. The second program, Project Newgate, seeks to test higher education as a correctional method by taking University courses into the Minnesota State Reformatory for Men and by helping students enrolled there to make the transition from the Reformatory to the University campus. Work is proceeding on extension of legal services on problems of civil law to inmates of state correctional institutions. As a part of the Law School's clinical law program, this development will add a significant dimension to the experience of participating law students.

COLLEGE OF LIBERAL ARTS

E. W. Ziebarth, *Dean*

A prime responsibility of the College of Liberal Arts is not only the individualized, liberal education of those who earn its degrees but also enrichment of the educational experiences of students in the more specialized divisions of the University. The report that follows emphasizes the progress the College has made toward these goals. Reports of individual units, covering specific programs in more detail, are on file in the University Archives.

Enrollment—Fall quarter enrollments, always the largest of the year, were close to the effectiveness limit established in 1968. In fall 1968 enrollment (student fees paid) was 17,074 and in fall 1969 it was 17,027, both about 5 percent above the previous high, 16,183 in 1967. The College proposes to hold to the 17,000-17,500 range as the largest number it can serve effectively with currently available resources.

The number of new high school graduates registered was 4,322 in 1968 and 3,992 in 1969, the latter close to the optimum 4,000. The small decrease resulted in part from application of the formula that all Minnesota high school graduates with College Aptitude Ratings of 70 or higher be admitted immediately upon application and that those between 50 and 70 be admitted until the 4,000 limit is reached. In practice, all applicants with ratings above 50 were accepted; the "70 or higher" was changed to "60 or higher" for fall 1970. The growth of junior colleges in the Twin Cities area has tended to reduce the demand on the College of Liberal Arts.

Admission of advanced-standing students—those with credits from other institutions—has remained about level: 1,300 in 1968 and 1,336 in 1969. Analysis of grading standards in other institutions has made possible consideration of advanced-standing applicants on the basis of quality rather than of mathematical averages.

Freshmen and sophomores comprise slightly less than two thirds of the College's student population. The percentage of freshmen who continue toward the B.A. degree has risen steadily through the last two biennia.

The College remains by far the largest instructional unit in the University, and sheer numbers remain its most difficult problem. No further limitation of admissions through entrance standards or other devices, however, is indicated. Though classroom and staff facilities are severely strained, the use of televised

courses, late afternoon scheduling, and other methods have served to maintain instructional standards at an effective and acceptable level.

Organization and Administration—The College in this biennium completed 10 years under the "functional college" plan instituted in 1960-1962. No major structural change occurred in the period. The Divisional Council system for managing curricular matters and the All-College Council, now with substantial student membership, continued as viable operational devices. Junior faculty and graduate student representation on College committees was increased. Central office administration was strengthened by staff additions.

Several changes in departmental structure were introduced. The Afro-American Studies Department and the American Indian Studies Department were established to meet current educational and social needs. An interdepartmental major in urban studies was organized with support from a number of departments inside and outside the College. An interdisciplinary program in criminal justice studies was initiated to make possible specialization in this area in combination with certain social science majors. The expanding Speech Department became two autonomous departments: Speech, Communication, and Theatre Arts and Speech Science, Pathology, and Audiology. The School of Statistics was organized. Further integration of education for broadcasting was accomplished through cooperative efforts of the School of Journalism and Mass Communication, the Speech Department, and the Department of Radio and Television. The undergraduate major in social welfare, introduced in the 1966-1968 biennium, enrolled more than 500 majors; its graduates made Minnesota the first state in which the supply of B.A.-level social workers met the demand. The School of Public Affairs began offering graduate programs in 1968.

Arrangements for a Special Learning Opportunities advisers' office, to guide students in independent study and in design of interdepartmental programs as well as other innovative study plans, were completed as the biennium ended. Explorations to help students find educational patterns that they and the College feel will meet the demands of modern society are a charge of this office and of the College's Instruction and Curriculum Committees.

Curriculum—Curricular change, as in the preceding biennium, continued as a hallmark of the College's progress. Increased student participation in curricular development was a prime characteristic. This emphasis was a planned response to the ardent concern of students about the direction of their education. Steps taken during the biennium included establishment of procedures for student initiation of courses, subject to College approval; participation by students in developing course evaluation procedures; and expanded use of the honors program and of independent and directed study opportunities.

College-wide expansion of learning opportunities was a significant trend. For example, work was offered in at least 30 non-English languages during the biennium (the configuration changes from year to year as needs and demands change). The honors program provided its enrollees not only extracurricular learning advantages but also a hundred or more freshman-sophomore colloquia and more than 30 senior seminars, all under distinguished faculty leadership.

The distribution requirements pattern for the B.A. degree was modified to enhance its productive capacity. It remains under continuous examination. The English Proficiency Test, a degree requirement for a dozen years, was discontinued because of difficulties in its administration. The pass-no credit grading system, introduced in 1967, proved a most useful tool in adding scope to student programs and changes to facilitate its use were adopted. The list of courses acceptable under the plan was broadened.

As the biennium ended the College was moving to meet the new University pattern prescribing 4- and 5-credit rather than 3-credit courses as the norm—a plan to provide greater depth in most courses. One large department, with this goal, changed all courses to 4 credits. Definitive criteria for the establishment of new courses were adopted. Two "crisis courses," instituted in response to student concern in spring 1970 about United States military, political, and social policies, drew enrollment of more than 700; their success led to plans for continuation of issue-oriented studies in the following year.

Faculty—At the end of the 1958-1960 biennium the ratio of students to faculty (full-time equivalent) in the College was 16 to 1; at the end of 1968-

1970 it was 19 to 1. This means that the College had not, in this respect, kept pace with the growth in student population. Student-faculty ratio is not the only measure of teaching effectiveness—a low ratio is more important in some fields and some kinds of classes than in others—but a lower level than that now obtaining is desirable. Reversal of the trend becomes increasingly important as the College moves toward proportionately heavier enrollment in the upper division, whose smaller advanced classes replace the large introductory lecture sections.

The College has been able to continue its generally favorable retention record, with successful resistance of most of the attractive offers made to its staff by other institutions. To build for the future, it will be vital not only to reverse the faculty-student ratio trend but to continue to attract outstanding men and women to the staff. The necessity to strengthen new programs, such as those in urban studies, Afro-American studies, American Indian studies, and public affairs, with staff of quality and experience adds to the need for increased funding by the Legislature.

Research and Training—Funds for research and training—about \$6 million—were at the level of those in the previous biennium, but an apparent decline began in 1969-1970 and further decrease is expected in 1970-1972. Nevertheless, a large number of significant research programs were instituted or continued and research support in the humanistic fields became more readily available. The work of the Social Science Research Facilities Center was enhanced by its contiguity to the West Bank Computer Center, and teaching and training operations were enlarged through these Centers, the Statistical Center, and other research facilities. As in the past, about a third of research-training funds went to research and two thirds to training. Outside support was heaviest in anthropology, economics, psychology, social work, sociology, and speech science.

Physical Facilities—Shortage of space for classes, staff offices, and administrative activities became increasingly acute. A slight alleviation of office crowding was gained through completion of the Murphy-Vincent Hall links, but lack of faculty space continued as the College's primary physical problem. Some relief is expected when restructuring of the Psychology building is completed in 1972. The College is certain to need added classroom space. Although the enrollment ceiling is a favorable factor, growth in the number of upper division and graduate classes, which demand small classrooms, must be expected. Increased demands from other University areas and expansion of educational services and instructional methods, which often heighten classroom and laboratory needs, must be taken into account. Scheduling of classes in "off" hours and use of closed-circuit TV continue to be employed when feasible.

Expansion of the number of service centers such as the Social Science Research Facilities Center and the Statistical Center also increases space demands. Further pressure comes from the need for new departmental office space as new programs are instituted and large departments are divided into smaller units.

Student Personnel Programming—The College, through its Student Personnel Council, developed two policies that significantly affect student progress toward degrees. One makes possible the adjustment of early grade point deficiencies for students whose later work becomes satisfactory, so as not to penalize them for early losses. The second, adopted University-wide by the Senate after its proposal by CLA, modifies the grade Incomplete (I) so that it will not become F if the student does not complete the course. Two changes to protect student civil rights were also achieved: addition of a separate appeals channel for students accused of scholastic dishonesty, to go beyond the informal methods commonly used, and adoption of rules to govern the College's release of information about students.

Under the College-Level Examination Program (CLEP), it is now possible for CLA students to take examinations to earn credits or exemption from requirements. Use of this plan was welcomed by students, and it is expected to grow.

CLA joined with other University agencies to set up tutorial and counseling services for Martin Luther King Scholarship holders. The CLA program met

general success in aiding students whose academic background and financial and home problems handicapped them in their University work. The student-managed Student Ombudsman Service, originated by the Student Intermediary Board, won support from the student incidental fee in spring 1970. This service made a remarkable record in helping students to meet College-related problems.

An Upper Division Course Description Manual (435 pages) was issued for the first time, and the 10-year-old Lower Division Manual (254 pages) was updated. A Faculty Advisers Manual was devised for major advisers and started toward fall 1970 publication. The existing Freshman Advisers Manual was updated and enlarged.

Future Needs—Demands on the College for educational and community services in the years immediately ahead focus on two areas in which needs are dramatically evident: staff and space. The office, classroom, laboratory, and administrative space problems have been suggested above. The introduction of new departments and centers and the expansion of other departments accent the need for an expanding staff of high quality. Carrying out the College's missions—educational innovation, development of individual study programs, contribution to the examination and solution of public problems—can be fully accomplished only by careful extension of the College's staff resources.

A need for the immediate future is a direct result of a 1969 legislative appropriation to the University for special instructional equipment. The equipment purchased with some \$300,000 in grants to CLA, and that to be procured from similar later grants, will be of unmeasured instructional value. But the grants do not include funds for maintenance, storage, and security, thereby increasing the strain on already limited supply budgets.

The College, appreciative of the support given by the people and the Legislature of Minnesota to the University, will be able to meet its responsibilities only with continuation and, insofar as possible, extension of such support. Not only price- and salary-factors, but also the costly demands of high-quality education in a society that becomes increasingly sophisticated and complex, can be accommodated in no other way.

UNIVERSITY OF MINNESOTA LIBRARIES

Edward B. Stanford, *Director*

The 1968-1970 biennium was of special significance for the University of Minnesota Libraries, for it was during this period that the O. Meredith Wilson Library was finally completed and occupied. The \$10,000,000 facility opened for service at the beginning of fall quarter 1968. The final move to the new building brought with it new problems, challenges, and opportunities for improved library service, involving the redeployment of staff and collections in both the Wilson and Walter Libraries.

In 1969-1970, unsettled concerns in other areas that had been latent during the construction and occupation period began to surface. Unfulfilled needs in other parts of the library system become new high priority concerns, and the national and campus anxiety of the times, resulting in increasing demands for immediate action on social, political, and economic problems, became reflected in pressures on the library system.

Development and Support of the Collections—On June 30, 1970, the holdings of all libraries in the University totaled 2,944,844 volumes, an increase of 253,642 volumes during the biennium. Current holdings include 2,606,734 volumes in Minneapolis, 145,420 in St. Paul, 133,748 at Duluth, 48,872 at Morris, and 10,070 at Crookston. Special attention was given during the biennium to increasing the library's resources in such areas as Arabic and Hebrew language and literature materials and publications in support of Afro-American studies, East and South Asian studies, population, ecology, and air, water, and soil pollution.

During 1969-1970, funds for purchase of library materials were increased substantially with a special appropriation provided by the 1969 Legislature. By the end of the year, however, it became evident that because these funds were

for two years only, and because federal grants for library resources were suddenly cut back severely, the University Libraries would face a serious fiscal crisis in the next biennium unless a major increase in the recurring funds for library development could be obtained from the Legislature in 1971. In spring 1970, requests for such increases for all campuses were made to the University administration, for inclusion in its budget presentation to the 1971 Legislature.

The drastic cuts in federal grants for library materials, which had been seen as a possibility for 1971-1972, suddenly were put into effect in 1970. In contrast to the \$128,680 USOE grant awarded to the Minneapolis-St. Paul campus library for 1969-1970, the grant for 1970-1971 was reduced to \$30,279—a cut of 77 percent. This will seriously reduce total funds available for library purchases in 1970-1971. Another important source of funds for library acquisitions in recent years has been annual allocations from Research Overhead. For the past five years, when research grants to the University have increased annually by millions of dollars, the library's book budget allotments from Research Overhead have remained frozen at their 1963-1964 level.

Personnel—The opening of the Wilson Library necessitated establishment of a substantial number of new positions during 1968-1969, with the result that other positions needed to handle increased work loads and to staff specialized services outside of the Wilson Library could not be provided. Moreover, student demands for increased hours required the emergency provision of nonrecurring funds in order to adjust library schedules. During the coming biennium, with library use continuing to increase, funds will be needed to provide additional positions that could not be authorized during 1968-1970.

Relative stability was maintained in the library's professional staff during the biennium, but personnel turnover continued to present a serious problem in the subprofessional and clerical grades, particularly at the lower salary levels. A significantly improved salary plan for Civil Service employees, effective July 1, 1969, appeared to offer hope for improvement in both recruitment and retention of staff. However, much of the increase in individual salaries that resulted was eroded by the rapid cost-of-living rise that occurred during 1969-1970.

The most critical termination occurring in 1968-1969 was that of Roger Hanson, who, as assistant to the director, had handled much of the final planning and equipping of the Wilson Library and following the move had become chief of the Reference Services Department. He was replaced by Theodore Peck, director of the Technical Information Service.

Organization—Several organizational changes were made during the biennium to improve library services. Glenn Brudvig, bio-medical librarian, was given the additional title of assistant director for research and development and assigned to work with department heads and staff members on system-wide plans for library automation. In 1969-1970 the Bio-Medical Library was given a separate budget and assumed responsibility for its own acquisitions and cataloging.

With the move to the Wilson Library, several other organizational changes occurred. The Interlibrary Loan Service, which had been a part of the general reference service in the Walter Library, was given separate quarters in the Wilson Library. A separate Documents Division was also set up in the Wilson Library to service the extensive public documents collection on a full-time basis, and a Business Reference Service was established to administer materials transferred from the School of Business Administration to the library. The three new units report administratively to the chief of the Reference Services Department. A College Library, replacing the Freshman-Sophomore Library in Johnston Hall, was established in the former Walter Library Reference Room. With the opening of the Wilson Library, the West Bank Branch Library, which had served as an interim service unit, was discontinued; its librarian joined the staff of the new Documents Division.

Facilities and Planning—The completion and opening of the O. Meredith Wilson Library overshadowed most of the other facilities developments during 1968-1970. The building has been successful almost beyond expectations; statistics of its use, both in terms of attendance and use of extended hours, are clear evidence of the new library's contribution to the University's educational mission. According to daily turnstile count, the building received intensive use as

soon as it opened in the fall and showed significant increases in each succeeding quarter during its first year. The count for fall quarter 1968 was 300,700 on the entrance turnstiles, a figure that rose 43 percent, to 429,687, winter quarter. The spring quarter tally was 437,184, for a total of 1,167,571 as the academic year attendance.

Other new library facilities completed and occupied during 1968-1969 include quarters for the Entomology Library in St. Paul, the first phase of a new library building at Morris, and the third phase of the new library at Duluth. The Chemistry and Music Libraries moved to the Walter Library, and space for the Education Library and the Division of Manuscripts and Archives, as well as quarters for the Immigrant Archives, were expanded. Lighting in the former Walter Library Reference Room, now occupied by the College Library, was greatly improved through installation of fixtures specially designed for the high ceilings in the reading room.

In 1969-1970 a room to house and service literary recordings and tapes in the Wilson Library was completed, and listening facilities for music were installed in the basement of the Walter Library. Construction of an addition joining Vincent and Murphy Halls, with space to house a separate Mathematics Library, was to be completed by fall 1970. This will involve a transfer of mathematics materials from the present Math-Physics Library. A move scheduled for summer 1970 is the transfer of the Immigrant Archives and the Ukrainian Collection from the Walter Library and the Social Welfare History Archives from the Como library facility to air-conditioned and humidity-controlled quarters in the Northern States Power building on Highway 280, which is being rented by the University.

Among future library facility needs, already under consideration by the University administration, are the following: an Archives Research Center building for the rapidly growing archival resources of the University; space in the Walter Library basement for the Art Library, which has outgrown its space in Jones Hall; expanded space for the Engineering, Architecture, and Mines Libraries; a link between the Chemistry building and the Walter Library, as agreed when the Chemistry Library moved to Walter; a major new library facility to serve expanded program developments on the St. Paul campus; a second phase of the library building at Morris; space for Library Science collections and the Art Library on the West Bank when the Library School and the Art History Department are relocated there; remodeling of Walter Library space for more effective use, including air-conditioning where feasible; completion of air-conditioning in the Bio-Medical Library; expansion of the O. Meredith Wilson Library; and a library storage building to replace the Como facility released to the Chemical Storehouse.

MINITEX—Resources of the University's approximately 20 libraries have been available for "in house" use to patrons of other libraries, both college and public. Faculty and students of Twin Cities area colleges have made considerable use of this privilege, but use by members of out-state college communities has been infrequent and difficult. Specialized library materials have been made available outside of the metropolitan area through interlibrary loan services.

Late in 1968, to test the feasibility of sharing University library resources with patrons of out-state libraries, a two-year pilot project known as the Minnesota Interlibrary Teletype Experiment (MINITEX) was undertaken with funds provided by the Louis W. and Maud Hill Family Foundation and the State Department of Education. Eleven libraries, representing public, private, and junior colleges and public libraries, were initially invited to participate. Each was supplied with a teletype transmitter-receiver and offered expedited service, including the loan of books and photocopies of journal articles, for the experimental period. All direct costs of the service were borne by the MINITEX grant at the University.

During the first six months of 1969 the MINITEX staff at the University handled 7,378 requests. From July 1969 through June 1970 requests totaled 25,424, for an 18-month total of 32,802 transactions. A depth analysis of the 1969-1970 requests shows that 62.4 percent of them were for faculty members and graduate students and 18.6 percent were for undergraduates. Nearly three fourths were for photocopies of journal articles; the remainder were for loans of University library materials in their original format. Almost two thirds of all requests were to obtain materials for research or teaching; the remainder were

for graduate or undergraduate studies. Three fourths of all items supplied were received by the requesting library within 48 hours of the request transmission. The total unit cost of the service, including all TWX rentals and message bills, copying expenses, MINITEX staff salaries, and mail or delivery charges, was \$2.08 per request. By any measure, this service was significantly faster and less costly than that of any other interlibrary service yet reported in the professional literature.

In light of the success of the MINITEX experiment, recommendations for establishing a similar service, jointly financed by the Legislature and participating libraries, are being developed for submission to the University administration and the Higher Education Coordinating Commission in fall 1970. It is hoped that funding action by the 1971 Legislature will make it possible to proceed with a permanent, comparable service during the coming biennium.

Technical Information Service—This enterprise was a successful demonstration of what can be accomplished, given staffing funds, to help non-University groups and individuals who need information from publications in University Libraries collections. Financed largely with federal funds through the State Technical Services Act (STSA), the Service rendered reference service, conducted literature searches, and supplied photocopies of journal articles, mainly in scientific and technical fields, to small businesses and industrial research personnel throughout Minnesota. In spring 1970, however, Congress terminated STSA funding. At the close of the 1969-1970 academic year, the University administration was seeking state or local funding; unless these efforts are successful, this service to industry may have to be discontinued during the coming biennium.

Automation—The Systems Division completed several projects during the biennium. A systems design was developed for conversion of the library's subject authority file, a valuable tool for catalogers, to a computer-based system. The automated bio-medical serials records, which became operational in 1968-1969, were to have been converted to an on-line system in 1969-1970. A cut-back in funding postponed this conversion for another year. Perhaps the most significant development in data processing was the formulation of proposals for a statewide computer-aided library system for Minnesota. The specifications for such a system, worked out in consultation with a computer subcommittee of the Higher Education Coordinating Commission, are scheduled to be presented to the 1971 Legislature for funding. The future of this proposal will depend on whether funds for its implementation can be obtained.

Library Action Box—In August 1969, to provide library patrons with a convenient means of submitting suggestions and criticisms to the Library administration, Library Action Boxes were installed in several public areas of the Wilson Library. Space was provided on the forms for a signature and local address, to be filled in if a reply was desired. Apparently this system filled a genuine need; during the year more than 780 questions and suggestions were submitted. Almost half of them were signed and were answered by the department responsible for the topic of inquiry.

Microfilm Catalog—In spring 1970, with funds made available by the University administration, microfilm copies of the Wilson Library main card catalog, listing by author, title, and subject the holdings of all Twin Cities campus libraries, were placed in the campus libraries in St. Paul, Duluth, and Morris. This cassette catalog, along with the motor-driven microfilm reading machines provided, makes it possible for faculty and students on these campuses to locate specific titles that can be obtained through the MINITEX service. The microfilm catalog is also expected to assist campus librarians in verifying entries and subject headings and in obtaining other bibliographic information needed in book selection and cataloging. Indications are that the catalog will be, as hoped, an effective means of identifying materials available on the Twin Cities campus and an increasingly important aid to processing and reference librarians on other campuses. During the coming biennium, consideration will be given to offering copies of this catalog, at cost, to other libraries in Minnesota.

Library Publications—During the biennium the University Libraries were the source of a number of publications authored or edited by members of the staff.

Among materials published were periodicals, handbooks, catalogs, brochures, lists, bulletins, pamphlets, source guides, and bibliographies. In addition, several departments and departmental libraries issued selected lists of "Recent Accessions" to keep their clientele informed of new items in the collections.

Staff Activities—The many contributions of library staff members beyond their required responsibilities can only be indicated. Staff members gave talks and tours to explain the library's services and resources. A Catalog Information Desk, manned by members of the Processing Department, was established to assist patrons in locating library materials through the card catalog. As a result of the campus-wide interest in the Vietnam war in spring 1970, the library staff set up and manned a Southeast Asia Information Desk in Wilson Library to provide publications, facts, and published analyses and commentaries on U.S. policy and action in this sensitive geographic area. While a good many faculty and students discontinued formal class activities during this period, the library staff felt that its most effective contribution would be to help library patrons become better informed on these highly controversial issues.

In addition to these activities, a large number of staff members, while carrying full-time library responsibilities, engaged in programs of continuing education and pursued advanced degrees, participated in monthly meetings of the Library Staff Forum, and conducted research projects in librarianship or literature. In spring 1969 the Library Staff Association was reorganized, with a new constitution and plans for a wide range of activities to be undertaken through standing and ad hoc committees during the coming year. During 1969-1970 the revitalized organization served as an effective channel for staff-administration communication and for wider staff participation in policy matters.

Progress during the biennium has been attained through the efforts of all the library staff, with the aid and encouragement of the University administration and the Senate Library Committee. Continued understanding and support, along with help from the 1971 Legislature, will enable the library to meet the challenges of the coming biennium.

COLLEGE OF MEDICAL SCIENCES

Robert B. Howard, *Dean*

College activity during the biennium involved increasing interaction with the community, emphasis on problems of health care delivery, and concern with health manpower shortages. Key efforts were aimed at closer working relationships among health sciences units at the University. From the appointment of the Council of Health Sciences Dean and Directors in 1968, continuing progress has been made toward development of an organization that will best represent an integrated health sciences program. The Council and the mission delineated by the Regents for the health sciences will provide the framework for continued and responsive growth and development.

MEDICAL SCHOOL

Administration—During the 1968-1970 biennium, Dr. Robert B. Howard, dean of the College, found it necessary to devote increasing attention to non-Medical School aspects of the activities and relationships of the College. Delegation of many of his Medical School responsibilities to Associate Dean H. Mead Cavert, who was designated executive officer of the School, allowed Dean Howard to extend his involvement in the health sciences planning and development program and in the activities of the newly formed Health Sciences Council of Deans and Directors, of which he was the first chairman. In the Office of the Associate Dean, curriculum developments and related medical student affairs were the responsibility of Assistant Dean Robert J. McCollister, and admissions and liaison with premedical advisers, students, and colleges were the responsibility of Assistant Dean W. Albert Sullivan, Jr.

Graduates—The Medical School graduated classes of 168 in 1969 and 180 in 1970. The graduation of these future physicians was marked by the traditional recognition program in June of each year. In 1970 the address, "The Physician

as Citizen," was delivered by Regents' Professor of Physiology Maurice B. Vischer, preceding by a few days his formal retirement after several decades of distinguished service. He continues in an emeritus role with a vigorous research program in cardiovascular physiology.

Mission and Governance—The Medical School faculty participated in activities involved in the reorganization of the health sciences, which culminated in the Board of Regents' "Mission Statement and Proposed Structure and Governance." Dr. Lyle French, head of the Department of Neurosurgery, and Dr. John Najarian, head of the Department of Surgery, served as chairman of two ad hoc committees of the Medical School faculty that presented faculty concerns and proposals on health sciences governance.

In November 1968, approval was given to the establishment of several new departments in the Medical School, all of which had previously been divisions within other departments, and the division heads were reappointed as department heads. The new departments include dermatology, family practice and community health, neurology, neurosurgery, and orthopedic surgery. More recently, the former Division of Radiation Therapy became the Department of Therapeutic Radiology. Two medical education councils were organized within the Administrative Board of the Medical School, one composed of the six basic health sciences departments, the other of the 18 clinical sciences departments.

Physician Manpower—Significant programs were planned and launched by the Medical School faculty and administration in response to the physician manpower shortage in Minnesota and the Upper Midwest. The School is a major participant in the University's Health Sciences Development Program, which will increase greatly the number of graduates in medicine, occupational and physical therapy, medical technology, advanced programs in the basic health sciences, clinical specialty training programs, and several new technological fields in medicine.

In fall 1969, the Medical School faculty approved application to the National Institutes of Health for funding of a major Physician Augmentation Program, with the objective of increasing the fall 1970 entering class in medicine by 60 students, for a total of 227. The program was approved and funded in spring 1970, advancing by three to five years the previously planned increases in Medical School class size and the schedule of the Development Program for graduation of substantially more physicians. Plans were developed for obtaining additional faculty and remodeling current facilities to accommodate the greatly enlarged class accepted for fall 1970.

There continued to be an increase in the number of applications for places in the entering classes in medicine. For the fall 1969 class, containing 162 places, almost 850 applications were received. Applications for the 227 places in the 1970 class numbered slightly less than 1,000. Approximately half of these were filled by Minnesota residents. More than 90 percent of the students in the fall 1969 entering class were Minnesota residents, and more than 80 percent of them had overall undergraduate grade averages of B or above.

Curriculum—A major change in Medical School curriculum was inaugurated in September 1969, after extensive study and planning by faculty and students. Objectives include greater flexibility of individual student programs, emphasis on individual learning efforts, relevance of basic medical science knowledge to clinical application, improved communication among faculty and students, and presentation of scientific information along systemic and topical lines. In addition to the customary emphasis on the basic science foundation of medicine, the first year program, Phase A, focuses on applicable behavioral science knowledge, early introduction to patient problems and health care, and learning experiences within small groups. There are numerous increased elective opportunities, culminating in a completely elective senior medical year. Students in the new curriculum have an option to complete their formal undergraduate medical education in three calendar years (11 quarters), and it seems probable that a significant number will select this shortened program.

In developing the new curriculum and preparing specific instructional presentations, especially for the integrated Phase B portion, the faculty has invested considerable effort in planning sessions, retreats, and self-education concerning modern instructional techniques, especially new audiovisual teaching methods.

As the curriculum has progressed, the School has gradually assembled an active staff primarily concerned with medical educational innovations, development, and organization.

Community Service—During the biennium, concern for and emphasis on community outreach and health service have assumed increasing prominence in the priorities and activities of the Medical School faculty. The Department of Family Practice and Community Health has been particularly active on these fronts, including development of various forms of student preceptorships with practicing physicians in metropolitan and rural Minnesota communities. With leadership primarily from the Departments of Pediatrics and Family Practice, a model pediatric and family health care center was maintained in the inner city area of South Minneapolis. Medical School faculty members have also been involved in the Pilot City Health Center in North Minneapolis. Medical students as well as junior faculty have been involved in two "storefront" health care operations.

Research—Although there was increased emphasis on the quality and quantity of teaching during the biennium, the Medical School faculty continued to provide regional and national leadership in research covering a wide variety of fields and specialties. Numerous faculty members were cited for their research contributions, large numbers of research reports were presented at professional meetings and scientific sessions, and hundreds of scientific papers authored by faculty investigators were published in national and international journals. Although there has been an alarming constriction of medical research grants, the faculty continues to garner impressive amounts in support of research—approximately \$13 million for the 1969-1970 fiscal year. In addition, over \$6 million was received from federal and nonfederal sources for teaching and training programs in medical research.

ASSOCIATED HEALTH PROGRAMS

History of Medicine—In 1968 the Department of the History of Medicine initiated a series of public noon-hour lectures in the history of medicine that met with a warm response. Offered in the fall, winter, and spring quarters, the third such series is now in progress. In addition to providing the regular courses in the history of medicine, the Department assisted the College of Liberal Arts, during winter quarter 1970, with a Senior Honors Colloquium on the Art and Practice of Medical Investigation. In fall quarter 1969, the Department sponsored a course on the legal, ethical, and philosophical aspects of medicine, organized by students of the junior class.

During the biennium the Department also sponsored a series of quarterly public lectures on the history of medicine, with speakers from outside the University. Speakers included Dr. Alvan P. Feinstein, Yale University; Dr. Carleton B. Chapman, dean, Dartmouth Medical School; Dr. Mikulas Teich, Institute of History, Czechoslovak Academy of Science; Dr. C. Walton Lillehei, chairman, Surgery Department, Cornell University; Professor Jacob Lorch, Department of Botany and History of Science, The Hebrew University, Jerusalem, Israel; Dr. William B. Bean, Department of Internal Medicine, University of Iowa; and Teodor V. Gjurgjevic, Andrya Stampar School of Public Health, University of Zagreb, Yugoslavia. The Department also had a part in bringing Dr. Jacob Bronowski of The Salk Institute for Biological Studies in San Diego to speak for the course on legal, ethical, and philosophical aspects of medicine.

Medical Technology—The Division of Medical Technology has continued to evaluate the 1966 revised curriculum in relation to the needs of the community for medical laboratory services. The new clinical field experience in local hospitals has proved extremely successful. Discussions and planning have continued regarding the need for baccalaureate-level specialist programs in the various laboratory disciplines and possible utilization of Hennepin County General Hospital as a site for student clinical practice.

A conference on Training Programs for Medical Laboratory Technicians for Community Health Services was held in December 1969. Cooperative educational programs for supportive laboratory personnel were explored with representatives

from junior colleges, vocational-technical schools, proprietary schools, professional societies, and health agencies.

Enrollment increases over the past few years have severely strained current teaching facilities and faculty. Curtailment of enrollment will be necessary if additional space and faculty cannot be provided.

Mortuary Science—On July 1, 1968, the Department of Mortuary Science was transferred administratively to the College of Medical Sciences. At that time, the Board of Regents authorized the granting of a B.S. degree with a major in mortuary science. During the biennium, 68 such degrees were granted, in addition to 39 Associate in Mortuary Science degrees. The associate degree is being phased out as provided by the Regents.

Enrollment for the biennium totaled 375 students, representing 23 states. The majority of enrollees were Minnesota residents. Curriculum planning, experimentation, and scheduling for more in-depth educational experiences continued to be the prime objective of the Department staff. The new practicum course proved to be the major accomplishment of the biennium. It has been acclaimed by students, staff, and the profession as the first major curricular innovation in the last three decades.

The reputation of the Department as a leader in funeral service education continued to receive national recognition. During the biennium the nine academic staff members, four full-time and five part-time, and the two full-time Civil Service staff members functioned with skill and competence. However, there is dire need for an added position in the practicum area.

Occupational Therapy—The curriculum committee, composed of academic faculty, clinical staff, and students, continued to meet weekly during the biennium. Modifications in courses were made and a study of the preprofessional requirements was initiated with the intent of enabling students to transfer directly into the professional program from other colleges and universities.

One full-time faculty member was added to the staff in November 1968 and one part-time member in September 1969. Two faculty representatives served on the physical medicine department's Disadvantaged Student Committee, which has been studying needs of minority students in the occupational and physical therapy programs. Contacts with the Martin Luther King Program and the Higher Education for Lower Income Persons Program were made to improve communications and help with recruitment. Three faculty members worked on a muscle function laboratory manual and a recreation manual for student use in the junior and sophomore years.

A marked increase in enrollment during the freshman and sophomore years has resulted in an increase in applications for admission to the professional program. Many qualified applicants must be rejected because of the necessity of limiting enrollment in the last two years of study. Junior-year enrollment was increased by 25 percent in fall 1969 despite crowded physical facilities and other limiting factors.

In February 1970, a resurvey accreditation visit was made by members of the American Medical Association and the American Occupational Therapy Association. Official notice of continued accreditation was received in June 1970.

Physical Medicine and Rehabilitation—The Department of Physical Medicine and Rehabilitation continued to serve as the Regional Rehabilitation Research and Training Center in cooperation with the Kenny Rehabilitation Institute. Research studies were continued in the physiological, biophysical, and clinical problems of patients and in the areas of rehabilitation techniques and equipment, psychological vocational systems, and all facets of education. Because severe chronic disability presents multifaceted and complex problems requiring systematic, ongoing study, the interdisciplinary approach to rehabilitation medicine and research is stressed. Shortage of personnel has continued to limit research efforts.

The Kenny Rehabilitation Institute-American Rehabilitation Foundation program has consistently emphasized continuing education and other means of enhancing effectiveness and productivity of rehabilitation manpower. The shortage of adequately trained professionals is an acute problem in the field of the rehabilitation of the disabled.

Physical Therapy—During the biennium, 86 students were graduated with Bachelor of Science degrees in physical therapy. At present, 169 students are enrolled in the physical therapy program as freshmen and sophomores, 96 as juniors and seniors, and one student as a Master of Science candidate with a major in physical therapy.

With the addition of a half-time physical therapy instructor to serve as coordinator of clinical practice programs, those programs have improved in both quality and number. A formal agreement of affiliation was established with Hennepin County General Hospital and a clinical instructor appointed at that institution. Negotiations to establish similar agreements with 15 other hospitals and clinics in the Twin Cities metropolitan area are in progress. Out-of-hospital internships were instituted with the Hennepin County Combined Nursing Services to provide students with broader experience in public health programs and in continuity of health care.

Video-taping continued to be a valuable aid to classroom instruction. Programmed instruction, used to teach medical terminology for a number of years, now is also used in the area of neuroanatomy. A new course in patient assessment was added to the curriculum and other revisions were made to promote more effective and integrated teaching.

SCHOOL OF NURSING

Organization and Administration—The Constitution and Bylaws of the School of Nursing were approved by the Regents at the beginning of the 1968-1970 biennium; with minor exceptions, the School has operated under this plan of organization. In June 1969, the title of the principal administrative officer of the School was changed from director to dean. Bylaws were amended in June 1970 to provide opportunity for student representation on almost all committees of the School. In accord with recommendations of the External Committee on Governance, the School of Nursing is to become a unit of the Health Sciences at the beginning of the next biennium.

With consultation from an organizational development firm during the biennium, operational functioning of committees, teaching teams, and total faculty was improved and an increase in both quantity and quality of student-faculty interaction was made possible. A chairman for curriculum and instruction was appointed in September 1969 to coordinate undergraduate, graduate, and continuing education curricula.

Admission Requirements—In the undergraduate program, increasing numbers of applicants necessitated a rise in the level of prenursing achievement required for admission, with exceptions for two special populations. Applicants who completed nursing in either a diploma or associate degree program and wish to complete a baccalaureate degree are held to only minimum admission standards. A small number of students identified as disadvantaged have also been admitted; these students will be assisted to meet minimum standards for admission, with a pledge of continuing assistance while enrolled in the School of Nursing.

Somewhat more flexible admission standards are being sought in the graduate program. In this area also, there is need for development of means to maximize the potential for success without sacrificing standards of professional performance.

Curriculum Development—The undergraduate curriculum continues to be subjected to extensive development and evaluation. Faculty workshops in summer 1968 and 1969 resulted in considerable progress. An application was submitted in spring 1970 for federal support of a curriculum development project to extend for five years. Efforts directed toward greater flexibility in the undergraduate program include development of validation examinations in nursing courses to allow students to accelerate progress; development of independent study materials to assist students in successful completion of validation examinations, to aid students who must drop out temporarily, and to enrich learning experiences for disadvantaged students; use of evening and summer opportunities to provide for acceleration, make-up, or transfer of students; and development of electives in nursing, particularly for honor students.

Graduate faculty are working toward greater flexibility through provision of summer and evening courses for practitioners who cannot pursue full-time study. It is anticipated that validation examinations will be developed for selected graduate-level courses. A request has been submitted to change the major in graduate study to nursing so that students may elect a more generalized program.

Community Programs—In fall 1969 one faculty member was released from campus teaching responsibilities to devote full time to assisting faculty in practical and associate degree programs. Assistance is provided through consultation visits on curriculum development and evaluation, assessment of needs for continuing education offerings, and organization of learning activities to meet these needs. Members of the faculty have also been involved in the Community University Comprehensive Health Care Center and Pilot City and Cedar-Riverside health projects.

Problems, Needs, Plans—The Citizens' Committee on Nursing in Minnesota has identified need for major expansion of the School of Nursing graduate program. The key need in the next five years is for instructional personnel and individuals to provide leadership in effecting innovative patterns of nursing care delivery.

Major problems in relation to program expansion are lack of qualified faculty, particularly at the graduate level, and insufficient space in which to carry out programs for increased numbers of students. The undergraduate program should be doubled and the numbers enrolled in graduate study increased five times during the coming five years. Recruitment of graduate students must be greatly increased if the needs of Minnesota are to be met. Nursing instructors, nurse clinicians, and nursing administrators with advanced preparation and expertise in maternal-child health are another pressing need for the region. Faculty, space, and equipment are needed for establishment of course work and other learning activities in this area.

Special Conferences and Symposia—The Alumnae Symposium in May 1969 featured Dr. Kathryn Smith, dean of the University of Colorado School of Nursing; Doris Miller, associate dean of the University of California School of Nursing, San Francisco, was the speaker at the 1970 symposium. Summer lecturers included Verle Watters and Mary Searight, University of California School of Nursing, San Francisco, and Charlotte Owens, Harvard University. Consultants for the summer 1970 Faculty Workshop were Sister Callista Roy, Mount St. Mary's College, Los Angeles, and Dr. Dorothy McLeod, State University of Arizona School of Nursing.

SCHOOL OF PUBLIC HEALTH

The School of Public Health, one of only 16 such accredited schools in the United States, is an outgrowth of a Medical School program begun some 50 years ago for diffusion of knowledge with respect to personal and community health agencies. Recognizing the foregoing as its mission, the School has been developed on the concept that there are two parts of public health, the environment and the people who live within it.

Environmental Health—Since its inception, the School has placed great emphasis upon its responsibility for instruction regarding environmental hazards. Unfortunately, many persons in the community and in too many educational institutions have taken the attitude that environmental problems have been essentially solved and that public health emphasis could be limited to the personal forces affecting the health of the individual. While the past century has seen highly effective control of certain environmental hazards, most people are only recently coming to realize what the School has taught from its inception—that the health hazards of the environment have not been removed through mere purification of drinking water, disposal of sewage, sanitation of food, and control of harmful insects. In its program of instruction and research, the School has been conscious of other environmental factors such as chemical pollution, radiation hazards, accidents, institutional sanitation, and biomedical contamination of space.

Programs developed in these areas during earlier years have received increasing attention and emphasis during the past decade. In 1957 the School obtained a federal grant for partial support of a training program in air pollution, in 1960 for instruction in control of radiation hazards, in 1963 for training in accident prevention, in 1963 for a training program in hospital engineering, and since 1965 for work in space biology and planetary quarantine. All of these programs have incorporated appropriate subject matter within a wide variety of general courses and have provided specialized graduate training for professional personnel in these fields. Reductions in federal funds for education and research have seriously limited proper development of these programs, and state funds have not been adequate to provide for the expansion that these topics deserve. There is need for substantial increases in support during coming years if the School is to fulfill its obligations in these highly important fields.

Another aspect of the work carried on through the Division of Environmental Health has been the summer program in Ground Water Development. This program, supported through AID grants, has provided instruction for more than 300 engineers and hydrogeologists sent to the School from over 60 nations during the past decade and has stimulated and assisted in the establishment of comparable courses in Bogotá, Colombia, and Ankara, Turkey. While generally recognized as a highly successful venture in development of safe water supplies in areas where surface water is at a premium, the program is feeling the stringency of federal appropriations. Its continuation is in some jeopardy due to AID emphasis on economics without an adequate balance of health promotion in the countries to which assistance is offered.

Health Care Delivery—The School's concern for the growing problems of delivery of health care to the individual was made evident during the biennium when the program in Hospital Administration, established in 1946, was renamed Hospital and Health Care Administration. The hospital is no longer concerned solely with what transpires within, but is playing a more active role in provision of health care throughout the community. That all health agencies must become involved in comprehensive health planning was recognized some dozen years ago when the Ph.D. program in Hospital Administration was established, emphasizing the institution as an integral part of a total community health care program.

The program in Hospital and Health Care Administration has been broadened to include more instruction in social science. Second-year students are offered a choice of the conventional hospital residency or a year of additional social science course work supplemented by limited community experience in comprehensive health planning. It is expected that in years to come more of the students will be entering the latter program.

The School has recognized, however, that training of personnel for direction of hospital and health care programs should not be limited to the larger hospitals or to students who can devote two or more years to full-time graduate study. A large group of hospital personnel who will never be reached by on-campus graduate training programs continue to be responsible for operation of a vast network of smaller hospitals. Some ten years ago the Hospital Research and Educational Trust of the American Hospital Association, with funds from the Kellogg Foundation, provided initial support to the School for a form of extension instruction for personnel throughout the Upper Midwest, including Manitoba. During the biennium Kellogg seed money was discontinued and support of the program was assumed by the Upper Midwest Hospital Association. This support permitted expansion of the program as well as more intensive instruction. At the end of the biennium, 56 administrators of health care facilities in the Upper Midwest were engaged in directed independent study supplemented by periodic seminars conducted in strategic locations throughout the area served. Programs for hospital supervisory personnel have also been developed in collaboration with selected educational institutions. During the last year of the biennium these programs reached 142 persons in Minnesota, 83 in Manitoba, 51 in Montana, 156 in Nebraska, 68 in North Dakota, and 63 in South Dakota. That the Upper Midwest Hospital Association should of its own initiative provide support for this program attests to its value to the smaller hospitals throughout the area.

Community Programs—Concern for delivery of health care has found further expression in numerous community studies and programs. Public Health Nursing staff, under a contract between the School and Hennepin County General Hospital, have participated in development of the Minneapolis Pilot City health care project, and staff in Health Education have worked closely with St. Paul-Ramsey Hospital, the St. Paul Bureau of Health, and the Community-University Health Care Center in Minneapolis. The Division of Public Health Nursing and the Department of Pediatrics have collaborated in an experimental program to develop "nurse-practitioners" who can assist pediatricians by assessing health status and referring only those children who present deviations from normal, thus achieving more effective use of professional time and expertise.

Institutes—Every year the School conducts a number of institutes ranging from a few days to a few weeks. Of special note is the three-week institute in epidemiology conducted in collaboration with the Nolte Center and supported by a federal grant. This program, conducted annually for four years with distinguished guest lecturers, was designed primarily for personnel teaching epidemiology in medical schools but has attracted registrants from many other kinds of institutions. During each of the last two summers it attracted almost 100 students, mostly from the United States and Canada, but also from Brazil, Colombia, Haiti, India, Japan, Korea, the Netherlands, the Philippines, South Vietnam, Sweden, Switzerland, and Yugoslavia. Federal funds are available for continuation of this program for at least two more years.

Enrollment—Registration in the School has shown little change during the biennium, not because potential students are lacking but because limited federal funds that have made it impossible to expand the School commensurate with demand. Space limitations have likewise restricted the number of enrollments that can be accepted. Despite these difficulties there has been decided growth: 178 students were enrolled in graduate programs a decade ago; 256 were enrolled in fall quarter 1969. Of special significance is the enrollment increase in Environmental Health, from 29 students in 1959 to 71 in 1969. The number of students working on Ph.D. programs in the School has also increased, from 15 in 1959 to 48 in 1969. This increase in advanced students places a particular strain on staff and on the already cramped quarters of the School.

UNIVERSITY HOSPITALS

University Hospitals has continued to expand services to meet the demands for health care, both locally and statewide. Over the last two years, emphasis has been placed on achieving a better internal operating system, planning for the future, enhancing the educational process, and working with the community.

Hospital operations are designed to deliver optimal health care to a wide variety of patients. The hospital operates within three major systems: patient care, support services, and data information and communications. Organizing efforts around these systems during the biennium resulted in creation of a Pediatric Intensive Care Unit, conversion of an acute care unit to a self-care unit, installation of a linear accelerator for cancer therapy, and development of new Emergency Room services and of a Hospital Computer Center. As a base health care center for the state, University Hospitals is providing a comprehensive care program for local patients plus specialized care for patients from other states and nations. Increasingly, University Hospitals has become less a referral hospital and more a hospital designed to handle both local and area-wide health care problems.

A good portion of the staff time at University Hospitals is devoted to planning, with emphasis on ideas and innovations as they relate to the mission of University Hospitals and not only to bricks and mortar. Although expansion and replacement of present facilities are planned, development of programs within the community has been emphasized. The Community-University Health Care Center is only one example of the outreach program. Also, over the last several years the Emergency Room and Ambulatory Care facilities at University Hospitals have been utilized more fully to provide a wider range of medical services at a lower cost to patients. Community projects other than the Com-

munity-University Health Care Center are the Cedar-Riverside Project, the Family Practice Program, and the Community Services Affiliation Program, which potentially could have a tremendous impact on hospitals throughout the state. The demand for the latter service is so great that it will grow at a rate far surpassing previous growth if resources are made available.

Involvement of University Hospitals in the educational process includes traditional as well as innovative approaches. Staff members are participating with the School of Public Health in a study of rural health care in Minnesota. The Health of the Nation Summer Lecture Series, which has been held for three years, is designed to promote recognition of health care problems by all health professionals within the community. The Community Services Affiliation Program, which currently includes 18 hospitals, makes the resources of University Hospitals available in whatever ways they can be used, from program and facility planning to in-service training programs. The involvement of the hospital staff with community agencies also provides a mechanism for exchange of ideas about new and better methods of delivery and maintenance of health care.

A review of Hospitals activities during the biennium shows a slight decrease in patient days and an increase in outpatient load. The average daily census decreased 5 percent over the biennium; a more significant statistic, in terms of the health care dollar, is that the average length of stay dropped 1.6 days or 11 percent. As the average daily inpatient charge is over \$108 per day, the savings per patient amounts to approximately \$150 per hospitalization. Outpatient visits increased 9 percent over this period, from 113,000 to 124,000.

As a result of the increased number of services and programs being provided at University Hospitals (particularly in labor-intensive areas such as the infant intensive care unit), the number of personnel has increased over the last several years. However, greater use is being made of allied health personnel to compensate for the shortage of professionally trained personnel in some areas. Full-time equivalent hospital staff now totals 2,600 employees, up 8 percent over the biennium.

University Hospitals activities during the biennium are reflected in the following statistics:

	1968-1969	1969-1970
Inpatient Admissions	16,137	17,064
Average Daily Census	614.5	600.2
Average Length of Stay	13.8	13.0
Total Patient Days of Hospital Care	224,317	219,172
Patient Visits to Outpatient Departments	118,609	124,426
Emergency Room Visits	17,189	16,002

DEPARTMENT OF MILITARY SCIENCE

William D. Beard, *Head*

The Army ROTC continued to provide male students with an opportunity to qualify for a commission in the United States Army Reserve or Regular Army through an integrated program of college-level military instruction.

The ROTC scholarship program begun in 1965 was continued. Seven students enrolled in the Army ROTC program were awarded four-year scholarships and five were awarded two-year scholarships. In addition, two students received scholarships awarded by the Twin Cities Chapter of the Association of the United States Army.

Curriculum—A major change in the military science curriculum during the biennium was the adoption, on a two-year trial basis, of the new Army ROTC Developmental Curriculum. The program, designed to increase academic creditability and acceptance while producing graduates with a common level of military training, includes a preprofessional phase consisting of courses in world military history and elements of national power and a professional phase with instruction in military subjects necessary to qualify the graduate for a commission.

Enrollment—ROTC strength at the end of each academic year was as follows:

Academic Year	Preprofessional Phase		Professional Phase		Total
	1st Yr	2nd Yr	3rd Yr	4th Yr	
1968-1969	52	45	41	60	198
1969-1970	32	30	52	45	159

Enrollment in the professional phase has remained almost constant, primarily due to the number of students admitted through the two-year program. Preprofessional phase enrollment has continued a steady decline due to changes in university freshman orientation and Selective Service procedures.

A total of 88 students were commissioned during 1968-1970, compared with 86 during the previous biennium.

Year	U.S. Army Reserve	Regular Army	Total
1968-1969	44	10	54
1969-1970	33	1	34

An analysis of the performance of Army ROTC graduates at the officer basic courses conducted at U.S. Army Service Schools during the biennium indicated that University of Minnesota graduates continued to be well above the national average for those graduating in the upper third of their classes and considerably below the national average for those placing in the lower third.

Activities—The U.S. Army Flight Training Program continued to be conducted at the University Flight Facility during the biennium. The Pershing Rifles Drill Society, Scabbard and Blade Honorary Leadership Society, Army ROTC Band, Ranger Detachment (an extracurricular organization begun in 1968 for the study of counterinsurgency tactics), and "Kadettes," a female affiliate, continued to be active in support of the Army ROTC program. Ratings for the Annual General Inspections were again "satisfactory," the highest rating possible, with favorable comments on the quality of the program.

DEPARTMENT OF NAVAL SCIENCE

W. T. Broughton, *Head*

During the biennium, the Naval ROTC Unit continued its primary mission of providing, by a permanent system of training and instruction in essential naval subjects at civilian educational institutions, a source from which qualified officers may be obtained for the Navy, the Marine Corps, the Naval Reserve, and the Marine Corps Reserve. Also continued were command and administrative responsibility for naval personnel attending the University under other college training programs sponsored by the Department of the Navy.

The annual NROTC enrollment consists of Regular NROTC students and Contract NROTC students, all following the same Naval Science curriculum. The Regular NROTC student is a candidate for a regular commission in the Navy or Marine Corps, with training subsidized by the Navy. The Contract NROTC student is a candidate for a reserve commission in the Navy or Marine Corps, with financial support in the form of a subsistence allowance during his final two years at the University.

All Regular NROTC students participate each year in a summer training period aboard a naval ship or at a naval base. Contract students participate in only one shipboard cruise, the summer prior to their last year at the University.

Regular and Contract students choose at the end of their sophomore year to continue in the Naval Line Officer sequence or to apply for the Marine

Corps program offered at the University, successful completion of which leads to a commission as second lieutenant. Commissioning in the Supply Corps continues to be possible by request after completion of the Line Sequence.

The Flight Indoctrination program continued to provide about 35 hours of flight instruction by private flying schools to each qualified senior and junior NROTC student.

Enrollment figures for the NROTC program for the biennium are as follows:

	Regular	Contract	Total
Fall 1968	71	75	146
Fall 1969	78	60	138

NROTC graduates during the biennium included:

	1968-1969	1969-1970
Ensign, U.S. Navy	19	11
Ensign, U.S. Navy Reserve	10	11
Second Lieutenant, U.S. Marine Corps	1	1
Second Lieutenant, U.S. Marine Corps Reserve	2	1

COLLEGE OF PHARMACY

Lawrence C. Weaver, *Dean*

Enrollment—Distribution of new students in pharmacy continued at about 60 percent in the 1-4 year program and 40 percent in the 2-3 year program as indicated:

Program	1967-1968	1968-1969	1969-1970
1-4	35	34	30
2-3	58	48	56
TOTAL	93	82	86

A breakdown by sex in each of the four classes reveals that the proportion of females has increased from 20 percent to 22 percent in one year, with prospects of further increases since females comprise one third of the 1969-1970 first-year class.

Actual attrition rate is difficult to determine by enrollments each quarter, but the over-all attrition rate was 7.0 percent during 1968-1969 and 5.6 percent during 1969-1970. The rate was almost identical for male and female students.

In 1969-1970, 32.3 percent of the students enrolled came from the Twin Cities and suburbs, 60.6 percent from outlying areas in the state, and 7.1 percent from out of state. As about half of the state's population is concentrated in the Twin Cities and suburbs, it is evident that the College is attracting fewer pharmacy students from the Twin Cities than from outlying areas.

Efforts have been made to increase enrollment in order to continue to qualify for an Institutional Development Grant; the first award of \$146,897 is for use during the 1970-1971 academic year. A recruitment program organized by William Hodapp, assistant to the dean, will be fortified in 1970-1971 by the efforts of Frank DiGangi, assistant dean for student affairs. Recruiting efforts may be directed toward attracting more students from the Twin Cities area and

more women into pharmacy. Fewer out-of-state students can be expected in the future because of increased tuition rates.

Undergraduate enrollment in the College in fall 1969 was 30 first-year, 94 second-year, 75 third-year, and 75 fourth-year students, for a total of 274 students. The large second-year class resulted from addition of 56 new students entering the 2-3 program. It is still desirable to give pharmacy students the flexibility afforded by the 1-4 and 2-3 year programs. Some colleges of pharmacy offer only one of these programs. During 1969-1970 there were 39 graduate students and seven postdoctoral students in pharmacy programs, distributed among the Departments of Medicinal Chemistry, Pharmacognosy, Pharmaceutics, and Clinical Pharmacy.

Curriculum—In recent years, substantial changes have been made in educational offerings to adapt them to advances in pharmaceutical education and the practice of pharmacy in the future. Because changes are taking place so rapidly in all of the health sciences, the pharmacy profession is not sure of its precise role in the future. Many pharmaceutical education leaders are convinced that the focal point must shift from products and physical problems, in which chemistry plays a prominent role, to patient orientation, with primary attention to the patient and his problems with drugs.

In response to this new emphasis, necessitating more attention to the biological and particularly the medical sciences, the new Department of Clinical Pharmacy was organized three years ago. The College of Pharmacy has been among the pioneers in this new subdivision of pharmacy and has provided guidance to other colleges developing clinical pharmacy programs. Hospital staffs and administrators have cooperated in setting up the new interprofessional clinical pharmacy courses, in which practicing physicians, pharmacists, and educators pool their knowledge and efforts to provide patient-oriented information and experience for third- and fourth-year pharmacy students. It is felt that pharmacy, medical, nursing, and other health professional students who work and study together will provide a foundation for more cooperative teamwork among these disciplines after graduation.

Four new areas have been added to the program offering clerkship training to senior students in pharmacy. Training in infectious disease control is offered in University Hospitals, surveillance of drug therapy in emotionally disturbed children is conducted at Cambridge State Hospital, internal medicine for pharmacy students is offered at St. Paul-Ramsey Hospital, and training in the operation of a drug information center is offered through the program developed in University Hospitals. The Drug Information Center, which invites inquiries from health professionals and the public on problems concerning drugs, is a professional service that pharmacists are well prepared to provide, but special training is needed to prepare them specifically for this kind of service. Clinical courses have also been organized at the Veterans Administration Hospital, the St. Louis Park Medical Center, and the Diabetes Detection and Education Center in Minneapolis.

The College administration has encouraged dialogue between students and faculty members as a basis for making curriculum improvements. Open discussions have proven helpful in some areas of dissatisfaction. More problems arise when changes are suggested in courses outside of the College, but, in general, good cooperation has been received from outside colleges and departments.

Real progress was made during the biennium in adoption of teaching techniques utilizing programmed instruction and audiovisual aids. A new course entitled Terminology of the Health Sciences, introduced during 1969, is an elective programmed learning course in which each student studies at his own pace, in his own quarters, and reports for an examination every other week. This kind of closely supervised self-instruction course has been demonstrated to be successful in making efficient use of limited space and the student's time and in accomplishing the task, as reflected by the high percentage of A and B grades earned in the course. Programmed learning material has also been used in pharmaceutics and pharmacognosy courses to supplement the regular textbooks. Several courses in pharmacy administration provide audiovisual materials for use in study carrels, six of which have been purchased. Programmed text material for a difficult segment of a pharmaceutics course is currently being prepared.

Another innovation in the curriculum was the presentation in 1969-1970 of an Over-The-Counter Products Course in which nine community pharmacists participated in the teaching. The close association between pharmacy practitioners and students under faculty supervision offers advantages that might be utilized in other courses in the future.

All departments in the College have tried to improve courses under their supervision with respect to the optimum position in the 4-year curriculum for their presentation. Studies have also been made by the curriculum committee to minimize overlapping of material presented in different courses, but a certain amount of repetition has been considered desirable particularly when different viewpoints are expressed in different courses.

Health Sciences Expansion—Medical departments have been organized administratively with those of dentistry, veterinary medicine, public health, nursing, and pharmacy into a Health Sciences Council of Deans and Directors. At present a search committee is seeking a vice president for health sciences. Organizational details will be worked out when that administrator has been selected and appointed by the Board of Regents. This kind of organization gives promise of facilitating interdepartmental curriculum adjustments and improving interdisciplinary relationships.

A physical plant to house the new health sciences complex will be built according to plans that are at present in an advanced stage of development. The first phase of construction is under way as a result of the appropriation of \$24 million in matching funds. This phase will provide additional space for the School of Dentistry and the basic medical sciences; specific facilities for the College of Pharmacy are in the planning stage. The next session of the Legislature will be requested to fund on a matching basis a new structure within the complex for pharmacy, which will be sharing some of the facilities already under construction or planned for other segments of the health sciences.

Faculty—Changes in the curriculum and addition of a department required additions to the faculty during the biennium. The new Department of Clinical Pharmacy attracted 15 highly qualified faculty members, including specialists who have served apprenticeships in clinical pharmacy and local pharmacists who have become established in various areas of institutional pharmacy. Three of the 15 hold unsalaried appointments as clinical instructors. Several candidates visited the Department of Pharmaceutics in regard to two open positions in biopharmaceutics, a relatively new area of interest that promises to contribute substantially to pharmaceutical research through application of physical chemistry to problems in pharmacology. The College lost only one faculty member during the biennium.

The "Professor of the Year" award, first given in June 1969, was awarded for the second time to John D. McRae, associate professor of pharmaceutics. He was selected by the graduating class as the professor who had been the best teacher during their college career. His senior course in dispensing pharmacy incorporates the new concept of patient drug-record systems, which is intended to expose and correct drug interactions in patients. This is a comparatively new professional service which is being offered by pharmacists to patients. Professor McRae was also one of six faculty members selected for an "All-University Distinguished Teaching Award" during 1969.

Frank E. DiGangi, professor of medicinal chemistry, was named assistant dean for student affairs. Counseling students, recruiting, and working out details in such areas as program scheduling, reporting grades, and ordering textbooks are among his responsibilities. He continues to conduct the course in quantitative medicinal chemistry during fall and winter quarters.

Professor Ole Gisvold relinquished administrative and teaching duties in the Department of Medicinal Chemistry to devote full-time to research in the field of phytochemistry of cardiotoxic drugs. Professor Taito O. Soine was named the new head of the Department.

In response to expansion in the direction of clinical pharmacy, the faculty recently developed guidelines for a constitution and bylaws for operation of the College. A representative six-member committee, selected by Dean Weaver, spent most of one quarter working out details of the guidelines, which were finally accepted unanimously in June 1970 on a two-year trial basis. The guide-

lines set standards for full voting membership at faculty meetings, assure equal opportunity to minority group members, and provide that all segments of the College, including students, may voice opinions on matters pertaining to them and to the operation of the College. Other provisions are designed to ensure that no department or individual become powerful enough to dominate the operation of the College and that a healthy balance be maintained between clinical and basic science departments in pharmaceutical education.

Research Grants—A training grant in the pharmaceutical sciences, including medicinal chemistry, pharmaceuticals, and pharmacognosy, has been approved for a five-year period. This grant of \$462,926 will replace the present \$270,751 training grant in medicinal chemistry, which has run for the last three years. The funds for the new grant had not yet been made available at the end of the biennium.

Individual grants awarded to faculty members in the College reached a new high during the biennium. National Institutes of Health and National Institute of Mental Health grants totaled \$189,145. Smaller grants from Eli Lilly and Company, Geigy Pharmaceutical Company, the American Cancer Society, and the Massengill Company and a research contract from the National Institute of Neurological Diseases and Stroke were awarded individual faculty members. The College library received Medical Library Resources Grants of \$2,385 for 1968-1969 and \$1,765 for 1969-1970 from the U.S. Public Health Service. An \$8,000 grant from the 1969 state Legislature, part of a \$1,000,000 University-wide grant for improvement of undergraduate teaching, was used to purchase 40 prescription-type balances for use in the dispensing pharmacy course. General research support grants were received from the University in the amount of \$25,839 for 1968-1969 and \$40,890 for 1969-1970.

Continuing Education—Many University faculty members have assisted in development of the closed-circuit TV series for presentation to state pharmacists and other health professionals to bring them up to date on new developments in the medical and pharmaceutical sciences. William Hodapp, assistant to the dean, organized production and distribution of the five series of programs completed so far. Several states outside of Minnesota also used these programs during the biennium and there is nationwide interest in this technique for continuing education.

During 1969-1970 a Drug Information Program was organized as a four-pronged approach to educating the public on drug abuse. One facet of the program was to provide authoritative information to anyone interested. Another was presentation by teams of pharmacy students of more than 80 programs on the subject to students in public and private schools, mainly in the Twin Cities metropolitan area. The continuing education facet consisted of a two-day drug abuse seminar for pharmacists, conducted by experts in such fields as pharmacology, psychology, and sociology. Intended to prepare pharmacists to educate their communities on drug use, misuse, and abuse, the seminar was attended by 77 state pharmacists. In the fourth phase of the program, faculty members appeared before adult audiences, particularly in the Twin Cities area, to present reliable information on drugs. The program was undertaken because it was felt that pharmacists in general are the best qualified and readily available source of accurate information on drugs. Funds were made available by the Century Mortar Club for slides and by the Massengill Company for drug kits to be used by those giving talks. The project has been judged highly successful, particularly for the student speakers, who probably learned more about drugs and their misuse and abuse than anyone else.

Talks on "Pharmaceutical Services to Nursing Homes" were given in several locations in the state. This project was sponsored by the Minnesota State Pharmaceutical Association.

An effort has been made to provide continuing education to pharmacists unable to attend meetings in other areas of the state. Programmed learning pamphlets on subjects of interest to practicing pharmacists appear to be ideally suited for this purpose. A start has been made in this direction, but funds have not been available to carry the project to fruition. This kind of educational device will have high priority in future continuing education plans.

Student Affairs—Students have been making themselves heard and their wants known during the biennium. They have been appointed to membership on faculty committees and will be invited as guests to faculty meetings at which the topics discussed relate to committees on which they serve. The College of Pharmacy Student Board was active in discussing student problems and communicating ideas to the College administration.

Three students and a faculty member took part in publicizing pharmacy as a career on the KTCA-TV program entitled "After High School—What?" In 1969 students and recent graduates conducted a symposium at the District Five meeting of Colleges and Boards of Pharmacy held in Minneapolis, discussing "Clinical Pharmacy—Some Experiences and Appraisals." An edition of *Pharmacopa* was published by Kappa Psi fraternity each year and distributed to all pharmacists in the state as well as to students and faculty in the College. Two pharmacy students spent a summer working with medical, dental, and nursing students helping the underprivileged in Appalachia, a project sponsored by the Student American Pharmaceutical Association.

Students also participated in a District Five Student American Pharmaceutical Association meeting, a Student American Medical Association meeting, a student retreat, an American Pharmaceutical Association meeting, and programs related to fraternal organizations. Funds for expenses of some of the students at these conventions came from the Century Mortar Club. The student body joined the faculty in attending the 1970 Samuel W. Melendy Annual Lecture delivered by the Honorable Hubert H. Humphrey in Mayo Auditorium.

Alumni Affairs—During 1968 practicing pharmacists representing all areas of the profession were selected to make up the new Pharmacy Advisory Board, organized to assist the College in keeping tuned to the needs of the profession. An all-day seminar of the new board members, the faculty, and student representatives discussed the operation and goals of the College in relation to the present and future needs of the profession.

The Century Mortar Club, which was organized in 1967, grew considerably during the biennium. Its 53 members and 6 life members have contributed \$11,690 to date, supporting a variety of student and faculty projects.

The death of Senator Harold R. Popp was reported as a blow to pharmacy since he was one of its strongest supporters in the state Legislature. Although he was not an alumnus of the College, his family established the Harold R. Popp Leadership Award to be awarded each year to the senior pharmacy student who "has shown outstanding participation in extracurricular activities at the University." The first award was presented at the June 1970 commencement exercises, which for the first time were held as an individual College ceremony. Held in Mayo Auditorium, the ceremony was attended by about 500 faculty, graduating students, parents, and friends of the College.

The University of Minnesota Outstanding Achievement Award was presented to Harold Pratt, director of professional services for the Walgreen Drug Company, at the annual Pharmacy Alumni Association Banquet held in spring 1970.

A history of the College of Pharmacy is being compiled by Professor Emeritus Charles V. Netz, alumnus, professor, and former acting dean of the College. The book, begun upon his retirement after years of close contact with the day-to-day operation of the College, is now nearing completion.

Future Projects—If the individual College graduation ceremony held in 1970 on a trial basis indicates advantages over the all-University function, it will be continued in future years. Last year, also for the first time, the Samuel W. Melendy Lecture was given during the day for the benefit of the students; it had been delivered after alumni- or College-sponsored banquets in former years. If the desired audience is students, as was the thinking last year, the lectures will continue to be scheduled during school hours in the future.

The College would like to work out a new pharmacy internship program with the State Board of Pharmacy. The subject has undergone considerable discussion for several years, but opinions differ widely on the best procedure to follow. The State Board should be receptive to undertaking a cooperative study of this problem with the College.

Formation of a new 6-year specialization program in pharmacy leading to the Pharm.D. degree has also been under consideration. This program is not

intended to replace the present 1-4 and 2-3 year programs but to supplement them for a few outstanding students. Other areas of specialization may be considered later in order to offer students more flexibility. Clinical pharmacy for institutional work, community pharmacies, group interprofessional operations, research and teaching, and pharmaceutical manufacturing are among areas of possible diversification in the future.

The health sciences expansion program will open new opportunities for College of Pharmacy involvement. The initial important step is to obtain funds from the state Legislature to join the rest of the health sciences team in a new physical plant.

SUMMER SESSION

Willard L. Thompson, *Dean*

Enrollment—The Summer Session, by serving as a fourth quarter, allows year-round study for students enrolled in the University. In 1968 and 1969 an increasing number of students who enrolled in summer sessions were enrolled in the University during the preceding academic year; there was a slight decline in the summer of 1970. In 1969, 62.72 percent of summer session students had been enrolled during the academic year; in 1970, 61.80 percent had been enrolled. There was also a small gain in the percentage of regular-year students who decide to attend summer sessions. For approximately 15 years, slightly over 20 percent of the students enrolled in the University during the regular year continued their studies in one or both summer session terms (23 percent in 1968, 23.66 percent in 1969, and 21.47 percent in 1970).

Total all-campus registration in 1969 was 29,514. If each person who attended one or both terms is counted only once, the unduplicated figure was 21,053. In 1970 the total registration was 29,325 and the unduplicated figure was 19,885. Summer session enrollment at the University of Minnesota, Morris, was 252 students in 1969 and 224 in 1970. The University of Minnesota, Duluth, registered 1,870 students in 1969 and 1,737 in 1970.

Special Programs—Although federal grants diminished, the Summer Session did offer a number of institutes during the biennium. The EPDA Institutes in German for Cooperating Teachers and Teacher Trainers and in Geography and the USOE Institute for Advanced Study in Intermediate Economics and Economic Education were offered in 1969 under the National Defense Education Act.

Institutes for High School Teachers of Physics, sponsored by the National Science Foundation, and Institutes for Development of Library Service for Minnesota Indians, sponsored by the U.S. Office of Education, were offered in 1969 and 1970. Other institutes offered in 1970 included a Counseling and Guidance Institute at Duluth; USOE Teacher Corps, Clinical Experiences; USOE Minnesota Occupational Education Programs for the Handicapped; and an EPDA Severe Learning Disabilities Institute.

Under a grant from the U.S. Office of Education, a South Asian Studies Institute was held in 1969, sponsored by the Committee on Institutional Cooperation (CIC). Intensive study of the languages of South Asia was joined with area studies in the politics, philosophy, and culture of that area. In 1970 a Far Eastern Institute, specializing in intensive study of Chinese and Japanese, was sponsored by CIC under a grant from the U.S. Office of Education and the Ford Foundation.

Other special programs during the biennium included a State and Regional Planning Conference, a Film Workshop, and a variety of workshops for educators and administrators. Field sessions were again held in public health (ground water development) and geology.

In 1969 and 1970 the Biology Session at the University Station in Itasca State Park again offered two five-week terms of study and research in terrestrial and fresh-water biology and a five-week session in forestry for undergraduate students.

In 1969 Music 60, featuring the Minnesota Orchestra and guest performers, was again offered as a unique music appreciation course. In both 1969 and

1970 the Minnesota Orchestra continued the Friday night concert series begun in 1967, attracting new audiences at the special admission of one dollar, and a Hill Family Foundation grant allowed the High School Musician's Project to bring 125 outstanding high school musicians to the campus for a four-week period of intensive musical training.

As in previous years, the Summer Session continued to provide many offerings through the Department of Concerts and Lectures, Coffman Memorial Union, the St. Paul Student Center, the University Gallery, the Museum of Natural History, and the Audio-Visual Education Service. With the University Theatre, productions on the Minnesota Centennial Showboat, in air-conditioned Scott Hall, and in the Peppermint Tent were offered.

Problems and Needs—Increased teaching costs, pressures for expanded offerings, and difficulties in scheduling classroom space were major problems during the biennium. As the Summer Session continued to be basically self-supporting (instructional costs are covered by tuition income), fiscal concerns were of high priority. Tuition in the Summer Session has been higher than in the regular year. In the summer of 1970, at the suggestion of the Senate Committee on Summer Session, the basis for tuition charges was changed from a per-term total for full-time students to a per-credit-hour basis. After careful study of the 1970 Summer Session budget, it was decided to set the tuition charge at \$14 per credit hour. The effect of this change was a decrease in the total number of credit hours taken during the summer of 1970 (182,253 in 1969 and 161,346 in 1970).

The Senate Committee on Summer Session also recommended to the central administration that some means be sought to provide greater levels of basic support to the Summer Session. The Committee was concerned about limitations on salaries paid to faculty under the present funding operation and provision of funds for orientation and advising activities, which more properly are the responsibility of the regular year. It is hoped these problems can be alleviated in the next biennium.

INSTITUTE OF TECHNOLOGY

Warren B. Cheston, *Dean*

Enrollment—Formalized programs to stimulate enrollment in the Institute of Technology (IT) and to retain more students through graduation continued to show positive results during the 1968-1970 biennium. Expected undergraduate enrollment of 4,131 for 1970-1971 represents the highest total in almost 15 years, and an IT graduating class of slightly more than 700, also the largest in many years, is predicted for 1971.

Further reflecting retention program effectiveness is the relatively uniform distribution of students in the four undergraduate years, with a slight but significant gain in the upper division attributable to transfers from state colleges and other institutions. These advanced students have more than compensated for losses due to normal attrition during the first two years. Academic attainment has improved along with the increased number of registrations for courses in sciences, architecture, and engineering. Classes in the Institute of Technology now have a higher percentage of students still in school and maintaining a grade average of C or above at the end of the third year than was previously the case for classes at the end of the first year.

Recruitment efforts have focused on visits of IT faculty members, senior students, and graduates now in technical employment to colleges and high schools. Retention programs currently in operation include expanded IT dormitory houses, commuter and suburban tutoring sessions, special advisory services, and general orientation or refresher courses in mathematics, reading, and study skills. The continuing impact of these programs plus upgrading of the IT curriculum to take account of the larger number of upper-division students would indicate that a goal of doubling IT bachelor degree output in the decade to 1975 is realistically attainable.

New Directions—Recognizing the changing demands upon engineering education and the increasing percentage of students in upper division and graduate

courses, the Institute of Technology undertook a major study of both its curriculum and its organization in 1968. The study, funded by the Louis W. and Maud Hill Family Foundation, was carried out by an Engineering Programs Study Committee that included students as well as faculty members. The findings were augmented by inputs from contacts with industry representatives and results of an Industry-Education conference held in 1969. After two years of preparation, the committee's report was presented to the faculty, and its recommendations were accepted with only slight modifications. Changes in engineering programs were initiated on the basis of those recommendations, and further implementation continues.

A principal thrust of the new programs is to provide greater flexibility. In this way a student can obtain a sound education for employment as an engineer with a bachelor's degree yet be better prepared if he chooses to pursue graduate studies, as increasing numbers are doing, or to combine his engineering background with study in such areas as law, biology, public health, or social, political, or medical sciences.

The desired course flexibility has been achieved partly by reducing requirements for a bachelor's degree in engineering to approximately 180 quarter credits in a four-year span, a change approved by the Board of Regents. The Bachelor of Science degree will continue to be awarded in a specific branch of engineering, although there has been some realignment of departments in recognition of new currents and developments in various fields. A central advising service was established to give students additional help in developing programs suited to their individual intentions. The consultative or supporting assistance provided through this service is expected to promote continuous upgrading of student achievement in IT.

Particular attention has been given in the curriculum changes to special requirements of technically oriented and scientifically sophisticated industries in Minnesota as well as to the over-all demand for a solid academic foundation for engineers and scientists.

Special State Funding—During the biennium the Institute of Technology was able to make significant improvements in undergraduate instruction as a result of the special legislative grants earmarked for instructional equipment for the University. More and improved laboratories for undergraduate courses and unique equipment necessary for study in new technical fields have been made available through these special appropriations.

Organizational and Program Changes

Chemical Engineering and Materials Science—In this new department formed from the Chemical Engineering Department and the materials science group of the School of Mineral and Metallurgical Engineering, materials used in a broad spectrum of engineering work, with special emphasis on solids, are studied. Fundamentals of physics, chemistry, and mathematics are applied to the development of engineering materials, and emphases range from metals (metallurgy) to ceramics, polymers (plastics), biomaterials, glasses, semiconductors, and electrical and magnetic materials. Problems of recycling and disposal or reclamation of materials now wasted have been given major attention in structuring the materials science program.

Chemistry—The traditional divisions of analytical, inorganic, organic, and physical chemistry were dissolved during the biennium. At the graduate level, the divisions were replaced by specialty areas of a more flexible nature, including biological and biophysical chemistry, chemical dynamics, chemical instrumentation and analysis, inorganic chemistry, organic chemistry, spectroscopy and the determination of structure, and physical chemistry. The new areas were established essentially to help graduate students set up programs of study in line with modern directions in chemical education and research. The divisional system also was eliminated at the undergraduate level.

The new organizational structure already has become a strong factor in recruitment of staff and upgrading of the quality of graduate students and of teaching.

A new undergraduate program for chemistry majors was also developed during the biennium. The draft program has attracted considerable attention from

other universities, government funding agencies, and the American Chemical Society. Interdisciplinary in nature, the program provides alternate tracks for chemistry majors who seek careers in business and government rather than the pure research orientation.

Civil and Mineral Engineering—A new administrative and academic structure was established during summer 1970 by integration of the faculties in rock mechanics and mineral engineering into the Civil Engineering Department. The enlarged jurisdiction includes programs in mining and extractive metallurgy. In addition, the Mineral Resources Research Center (formerly the Mines Experiment Station) and the St. Anthony Falls Hydraulic Laboratory are affiliated academically with the Civil and Mineral Engineering Department, but these units operate under separate research budgets and receive project sponsorship from industry as well as from government agencies and special state appropriations.

The program in civil engineering has experienced a significant increase in undergraduate enrollment; for the first time in recent years, the number of graduating seniors will approach the number needed to maintain the present level of 3,500 civil engineers employed in the state. Faculty groups from all divisions in the new department have begun drawing up undergraduate course programs aimed at concentrating maximum strengths of instructional personnel from civil, hydraulic, mineral, and metallurgical engineering, and rock mechanics.

Computer, Information, and Control Sciences—Courses and programs in computer, information, and control sciences were linked more closely and elevated to departmental status during the biennium, reflecting academic advances and increased student interest in these fields. The former IT graduate-level program in computer science and the related undergraduate instruction formerly offered through the Departments of Mathematics and Electrical Engineering are now coordinated in the new department. It offers the bachelor's degree with a major in computer science. Master's and doctor's degrees are offered by an interdisciplinary faculty and a Ph.D. degree in control science is offered through another graduate faculty. Institute of Technology students in the various computer fields have some of the most advanced computer facilities available anywhere for research and instruction.

Intern and Work-Study Programs—Several IT departments have initiated or expanded intern and work-study programs conducted with the cooperation of area industries. The Department of Aerospace Engineering and Mechanics offers an optional program in which a student works alternate quarters in classes and industry during the last two years. Some academic credit as well as financial remuneration is given for the work in industry, in which professional supervision supplements campus course study. Mechanical engineering students also have an intern or work-study option during the upper-division years. Students accepted for these programs are on a 12-month schedule and are paid for their work while gaining laboratory experience in actual engineering operations. A similar program is under development in civil and mineral engineering.

Program in Urban Transportation—An interdisciplinary program in urban transportation offered through several departments of the Institute of Technology, College of Liberal Arts, and School of Business Administration has been funded by the U.S. Department of Transportation. The two principal components of the program, research and training, included initiation of a number of projects during the biennium, provision of approximately six fellowships per year, and sponsorship of weekly seminars in urban transportation.

Special Projects

Limnological Research Center—Funds for studies of lakes throughout the state were provided by the Minnesota Resources Commission and various federal agencies. Surveys to determine the climatic and geologic controls on lake-water chemistry and the occurrence of different kinds of organisms in state waters have been continued. Detailed studies were completed on Lake Minnetonka and are under way on Lake Shagawa near Ely and on several lakes in the Itasca State Park region. Investigations of lake history have focused on changes resulting from agricultural land clearance in the drainage basins or from lakeshore and urban development pollution. The research particularly involves examination of organ-

isms that are sensitive to changes in water quality and that leave a fossil record in the sediments. Other projects have involved pollen analysis of lake sediments in areas within and outside of Minnesota to work out the development of regional vegetation during the past 20,000 years.

Mechanical Engineering—Reflecting the broadened scope of engineering in modern life, the Department of Mechanical Engineering made notable contributions during the biennium to medical and environmental sciences. Joining with personnel of the College of Medical Sciences, mechanical engineers worked in a bioengineering laboratory on development of mechanical heart systems and other implantable devices to support the functions of damaged cardiovascular tissues and organs. University researchers in aerosol particle studies, an area in which Minnesota has been nationally prominent for 40 years, undertook analysis of air pollution in the Los Angeles basin.

Mineral Resources Research Center—Under a new name suggesting broader scope in research and service activities, the Mineral Resources Research Center continues operations of the former Mines Experiment Station with expansion into the fields of rock mechanics, mining techniques, and mineral economics. The Center will continue to emphasize development of new technology and improvement of existing processes for recovery of minerals in the state and to issue quarterly reports to all mining companies in Minnesota. The fundamental research laboratories of the Center have been expanded greatly, making the latest equipment available for analytical or experimental work and instruction. One staff member has been added for full-time pollution control and reclamation work.

The Center has initiated studies on beneficiation of semitaconite and extraction of titanium from titaniferous magnetite. Pilot plant work is being carried out on copper-nickel deposits in Minnesota and bacterial leaching of manganese-iron ores. Considerable attention has been given to the fundamental electric and magnetic properties of minerals as part of an effort to design new kinds of magnetic separators for existing taconite plants. The Center has been successful in producing superconcentrates in which silica content has been cut to as low as 0.04 percent. These concentrates can be used for direct reduction of ore in areas of cheap fuel and power. Another promising program is a detailed study of the role of bentonite in pelletizing, and emphasis is being placed on the fundamental mechanism involved in agglomeration and direct reduction. The Center also has developed an essentially all-dry magnetic taconite flowsheet that possibly may alleviate water pollution problems.

Minnesota Geological Survey—Exploration for new mineral deposits in northern Minnesota was stimulated during the biennium by "target area" maps prepared by the Minnesota Geological Survey. The more than 20 maps and reports published were made available to industry and to local, state, and federal agencies concerned with development or preservation of geologic resources and with environmental problems.

Data provided by the Geological Survey also were used in classification of state lands and in leasing of lands for copper-nickel mining explorations. In the Twin Cities metropolitan area, the Minnesota Geological Survey collaborated with the State Department of Conservation and the United States Geological Survey in research on subsurface geology, providing information to several governmental units, including the Metropolitan Council.

In addition to carrying out research aimed at development of the state's geologic resources, the Minnesota Geological Survey serves as a clearinghouse for pertinent information and participates in professional instruction and public education.

St. Anthony Falls Hydraulic Laboratory—During the biennium, the staff of the St. Anthony Falls Hydraulic Laboratory did considerable work in the problem area of thermal pollution. Studies included fundamental research on mixing zones (supported by the Federal Water Quality Agency) and investigations of specific problems for the Northern States Power Company and the Commonwealth Edison Company. As a result of this work, the Laboratory was asked to prepare a survey for the Argonne National Laboratory on model studies for the spread of heated water. Research is also under way on warm water disposal at the NSP nuclear plant at Prairie Island. Temperature-controlled, outdoor fish-rearing ponds

were designed at the Laboratory for construction by the FWQA Water Quality Laboratory at Duluth. These ponds will be an example of socially desirable disposition of heat from a power plant.

Hydraulic aspects of other pollution problems were also studied. A mathematical model was developed to assist computer control of stormwater runoff to the Mississippi River from the Twin Cities metropolitan area. A series of rain gauges provide rainfall data to the computer model, which guides the operation of a system of Fabridams and gates in the combined sewer system. A study was made for Bethlehem Steel Company of the hydraulic effects of a dike proposed for Lake Erie near Buffalo, N.Y., to contain slag from the company's Lackawanna plant. The city of Chicago contracted with the Laboratory for studies of proposed storm runoff tunnels deep under the city, and that work led to fundamental research on drop shafts for the FWQA.

In addition to environment-related projects, the Laboratory staff worked on problems of technical importance, such as the effect of additives on friction and other properties of flowing water. This is of interest to the shipping industry and the U.S. Navy, which supported some of the studies, and to agencies concerned with the pipe transport of materials.

The work of the Laboratory is coordinated with teaching functions of the staff, who conduct regular courses and several evening classes in the General Extension Division.

School of Physics and Astronomy—Research possibilities in the area of astrophysics were expanded significantly with construction of a new observatory by the University of Minnesota and the University of California's San Diego-LaJolla unit. The British Science Research Council also contributed funds for the facility; students from that institution as well as from the University of Minnesota and LaJolla will receive training there.

The new observatory is located on Mount Lemmon in the Catalina range of Arizona, a site having exceptionally favorable atmospheric conditions for astronomy studies. The facility, which should become operative within the year, will have a 60-inch infrared telescope with much greater capability than the 30-inch pioneering instrument developed by Minnesota physicists for the University's O'Brien Observatory on the St. Croix River. Studies and possible identification of molecular species through observation of solar, galactic, and extragalactic sources with the infrared equipment is a wide new field, and the leadership of Minnesota scientists will be enhanced considerably by the new installation.

Supplementing the Arizona facility, course offerings and instructional staff of the School of Physics and Astronomy on the Minneapolis campus have been increased to accommodate more students with interests in astrophysics.

Participation of IT faculty members in analysis of moon materials since July 1969 has been well publicized, and several faculty members from the School of Physics and Astronomy have been assigned major projects in future NASA space research, including instrumentation for Mars probes.

UNIVERSITY COLLEGE

Alfred L. Vaughan, *Administrative Officer*

University College experienced unprecedented activity and change during the biennium. Because the College has had a tradition of making nontraditional educational opportunities available to appropriate students, the efforts of the University toward innovation in undergraduate education were focused on University College.

During 1968-1970, regular enrollments in the College's degree program more than doubled. New intercollege programs were developed in urban problems, urban transportation, open space and recreation, environmental health and other environmental problems, educational reform, and alternatives to public education.

In May 1969, the University Senate authorized an interdisciplinary independent study program in which a student could earn as many as 15 credits toward a bachelor's degree through off-campus study of his own design. This learning opportunity was made available through University College as UC 75. Within a year, more than 100 projects had been undertaken by students from various disciplines.

During the summer of 1969, the Living-Learning Center became a part of University College. The Center's mission is to provide individualized assistance to students who are trying to design special study opportunities in the community. The LLC participated in development of a drop-in center for dropouts in Southeast Minneapolis, establishment of storefront design studios in St. Paul and Minneapolis for architecture students, and placement of pre-education students in actual school settings to test their interest in public education. The Center also sponsored courses on the communal living movement, innovations in higher education, and the nature of violence.

At the last University Senate meeting for the 1969-1970 academic year, not only an additional function but a new structure was approved for University College. The new function is to provide a means whereby experiments in undergraduate education can be carried out and evaluated at the University. Experiments are to be collegiate in scope, involving development of total undergraduate programs rather than courses or parts of the undergraduate experience. Any group of faculty and students may submit a proposal for funding.

In the new structure, an all-University Governing Council replaces the presidentially appointed University College Committee. This Council will be appointed by and responsible to the Senate. The four activities continuing under the auspices of the University College will be the regular intercollege degree program, the independent study program, the Living-Learning Center, and the experiments in undergraduate education. All of these functions extend beyond the traditional patterns of undergraduate education in an attempt to create more viable models for the education of the future.

COLLEGE OF VETERINARY MEDICINE

W. T. S. Thorp, *Dean*

The College of Veterinary Medicine, one of 19 in the nation, continued its attempts to meet the veterinary education, research, and service needs of Minnesota, North and South Dakota, and Wisconsin. The graduate retention rate remained high, with 80 percent of all graduates choosing to practice in Minnesota or the surrounding economic area.

Educational opportunities for qualified applicants continued to become more limited; only 30 percent of the 1968 and 1969 applicants were admitted because of limited entering class size and some prospective applicants did not apply after learning of the competition they faced. Yet the demand for veterinary medical service continues to increase. For each graduating veterinarian, four or five opportunities are available.

This problem of increasing applications and limited enrollment versus the expanding market and opportunities for graduates has long been recognized by the College faculty and the University administration. A comprehensive three-year study was conducted by the faculty and outside consultants to determine a plan for expansion. The plan covers a 10-year period and involves expanding the staff, facilities, and equipment so as to double entering class size and increase enrollment in the D.V.M. program from 234 students in 1969-1970 to 457 students in 1980. Included are plans for expansion of continuing education programs, graduate student enrollment, and graduate and undergraduate student enrollment from other University units and for development of a Veterinary Medical Technician program.

Cooperative Efforts—The College of Veterinary Medicine continued affiliation and cooperative instructional programs with health sciences units, the Institute of Agriculture, the College of Biological Sciences, extension services, and experiment stations, among others. To comply with legislative intent, representatives of the College faculty worked with faculty from the Department of Animal Science to develop plans for mutual use of new buildings.

The Office of the Assistant to the Dean, to strengthen the services provided the preprofessional and professional student, maintained close contact with the Office of Admissions and Records, Office of Student Financial Aid, Student Counseling Bureau, and other student personnel agencies. Under these cooperative efforts, students enrolled at the University and elsewhere are provided assistance

in planning to meet requirements for admission to the College of Veterinary Medicine or in seeking alternate objectives when they are unable to gain admission.

Several conferences were initiated and conducted by departments in the College, notably a conference for public health veterinarians attended by some 100 persons and a conference of veterinary educators in the field of animal reproduction and infertility. Representatives of all veterinary colleges on the North American continent participated in the latter effort, which was funded by the Hill Foundation.

Education—The educational program, revised in 1966-1967, was under continual review by the Curriculum Committee of the College during the biennium. As a part of this evaluation, a year-long series of meetings open to students and faculty was held, featuring panel discussions by students, faculty, and graduates of the future needs of the veterinary profession. The sizeable number of graduates who participated represented most of the existing professional outlets. As an immediate result, some modifications were made in the elective and required course offerings in the fourth-year program. Further curriculum revision will be made as review of the existing program continues.

As a result of passage of the Federal Wholesale Meat Act in 1967 and the State Meat Inspection program of 1969, teaching and continuing education activities in the area of food hygiene were expanded. To accommodate the needs of modern veterinary medicine, a veterinary ophthalmologist and a veterinary urologist were added to the staff to develop programs in their areas of specialization. In the future, specialists in other areas will be sought to improve the clinical teaching programs in the College.

As a teaching innovation within the College, 12 auto-tutorial carrels were purchased for the Veterinary Medicine Library. Each carrel is equipped with tape player, earphones, foot control switch, carousel slide projector, and screen. The library provides a central location for College-wide use as well as accessibility to other resource materials. At present, the bulk of the course in food hygiene and portions of two other courses are being taught by auto-tutorial. Flexibility of student and teacher time is one of many advantages.

A limited preceptorship program begun for fourth-year students interested in small animal practice allows them to spend one or two weeks with a private practitioner in small animal practice. This opportunity to become involved in private practice helps students to learn and better appreciate some of the practical problems that arise and how to deal with them.

With the great demand for scientific manpower for research and teaching, graduate and postdoctoral education are becoming increasingly important. Increasing numbers of veterinarians are seeking admittance to the College's eight postdoctoral and graduate programs, some of which receive training grant funds from the National Institutes of Health.

It is widely recognized that continuing education is essential, particularly in scientific and professional fields. The College of Veterinary Medicine, in cooperation with the Agricultural Extension Service, has continued to expand its programs to interested groups throughout the state by means of night classes, educational television and radio programs, news releases, and meetings and conferences on and off campus. Faculty members have coordinated and presented continuing education programs for veterinarians, producers of food-producing animals and related industries, and owners of companion animals. Annual attendance at these conferences is conservatively estimated to be more than 4,000 persons, and it is expected that interest and attendance will continue to grow.

Research—Projects continued in the areas of eradication and control of diseases of animals and comparative medical aspects of diseases common to animals and man or transmitted from animals to man. In addition, faculty members continued to develop and intensify their studies on environmental conditions that relate to animal waste disposal and contamination of air and water supplies. Research was conducted on reproductive problems in several species; particularly noteworthy is the development of a technique of freezing stallion semen that excels all other techniques reported. Cooperative research with the Department of Animal Science on nutrition in horses and research on obstructive diseases (colics) of horses was undertaken; research was completed on canine hip dysplasia,

producing a method whereby the status of an animal could be determined from radiographs by a computer.

An important and timely research project receiving support from the Air Force Office of Scientific Research is a study of visceral organ neuroeffector mechanisms using fluorocarbon emulsion perfusion. The research is aimed at discovery of new methods of studying the physiological action of medications that are hazards to aerospace crew members.

The Veterinary Diagnostic Laboratory participates in the teaching program at the College and provides diagnostic service for the animal industry and the veterinary profession. It is the only state laboratory committed to provide such service, aiding in the control of diseases that cause economic loss to the livestock and poultry industries and indirectly or directly create hazards to the public health.

There is a constant increase in demand for diagnostic service, for improved quality, and for newer diagnostic techniques. Personnel of the Veterinary Diagnostic Laboratory cooperate in research projects with other units, and valuable research information is also obtained through screening of cases.

Future Needs and Plans—During the biennium work was begun on the addition to the Veterinary Hospital and Diagnostic Laboratory. Planning money was provided for additional facilities to be shared by Animal Sciences and several departments in the College. However, in order to meet expanding requirements and changing needs of the profession, increase manpower available to the health professions through expansion of enrollments, continue and expand research, and assist practicing veterinarians through programs of continuing education, it is vital that the College be provided sufficient funds to complete its 10-year program for "Increasing Educational Opportunities and Developing the Resources of Minnesota."

The national Congress in the past has recognized veterinary medicine's contributions to the health manpower of the nation. The Health Professions Assistance Act has provided funds for students who wish to enter veterinary colleges and matching funds for state appropriations for facilities. It is hoped that following approval of the College's expansion plans by the Board of Regents, sufficient monies will be appropriated by the state Legislature and the national Congress to carry these plans to fulfillment.

Divisions of Coordinate Campuses and Educational Relationships

Stanley J. Wenberg, *Vice President*

The Office of the Vice President for Educational Relationships and Development became the Office of the Vice President for Coordinate Campuses and Educational Relationships on September 12, 1969. This change reflected two major reorganization processes: the shift of development responsibilities to other units and the establishment of a coordination mechanism to relate the four coordinate campuses more effectively to the Twin Cities campus.

Several development, or fund-raising, functions were shifted to the vice president for investments, and later to the Office of the Director of Development, who assumed the duties of executive secretary of the University of Minnesota Foundation and chairman of the Development Committee and Development Council. He also assumed responsibility for the Special Projects Program, which formerly was attached to the Department of University Relations.

Assignment of responsibility for the coordinate campuses to a vice president was made to provide strong, direct, and continuous liaison between those campuses and the University's central administration, reflecting the growing recognition of the University as a multicampus, multipurpose institution. The campuses at Duluth, Morris, Crookston, and Waseca are coordinated through several committees and a set of administrative protocols for routing coordinate campus con-

cerns through central administration offices. Associate Vice President Stanley B. Kegler was given major coordination responsibility.

The Office continues administrative responsibility for the Departments of Alumni Relations, Intercollegiate Athletics, and University Relations, and for the Office of Federal Programs. The function of executive secretary of the Senate Committee on Academic Standing and Relationships, formerly the Senate Committee on Institutional Relationships, is a responsibility of this Office, as is liaison with local, state, and federal government; other educational institutions, systems, and associations; and the general public.

Some relationships with other educational institutions have changed during the biennium with the emerging role of the Minnesota Higher Education Coordinating Commission and the decision to drop the accreditation function for junior colleges. This Office still accredits private high schools, but junior college accreditation now rests with the North Central Association, for which this Office is the primary University contact.

The possibility of developing a coordinate campus in Rochester has been under study by this Office during the biennium. If authorized by the Higher Education Coordinating Commission and the Minnesota Legislature, this campus would add a third multipurpose University center to the two (Duluth and Twin Cities) already serving the heavily populated eastern third of the state. Crookston, Morris, and Waseca, located in other parts of the state, are special-purpose campuses with statewide missions.

Development of interinstitutional and interagency cooperation and of University inputs into public policy-making bodies continue to be major responsibilities of this Office. Especially important in these areas is the need to keep in touch with changing University and public priorities and to relate University programs to the continuously changing and interdependent programs of all post-secondary education institutions and systems in the state.

DEPARTMENT OF ALUMNI RELATIONS

Edwin L. Haislet, *Director*

Officers—Those serving as officers of the Minnesota Alumni Association during the biennium were as follows:

1968-1969

President	Kenneth C. Glaser, '42 B.B.A.
First Vice President	James A. Watson, '42 B.A.
Second Vice President	Harry Heltzer, '33 B.S.Met.E.
Secretary	Florence Lehmann, '23 B.A.
Treasurer	Wallace L. Boss, '28 B.S.Bus.
Past President	Albert H. Heimbach, '42 B.A.
Executive Director	Edwin L. Haislet, '31 B.S.Ed., '33 M.A., '38 Ed.D.

1969-1970

President	James A. Watson, '42 B.A.
First Vice President	Harry Heltzer, '33 B.S.Met.E.
Second Vice President	Richard E. Kyle, Sr., '27 LL.B.
Secretary	Irene D. Kreidberg, '30 B.B.A.
Treasurer	Wallace L. Boss, '28 B.S.Bus.
Past President	Kenneth C. Glaser, '42 B.B.A.
Executive Director	Edwin L. Haislet, '31 B.S.Ed., '33 M.A., '38 Ed.D.

Office—The Alumni Office now has a staff of 13 full-time employees, ten with the Department of Alumni Relations and three with the Minnesota Alumni Association.

Budget—In 1968-1969, income for the Department of Alumni Relations was \$119,058 and for the Minnesota Alumni Association \$121,000, making a total of \$240,058. In 1969-1970, the total was \$258,414, with \$128,814 for the Association and \$129,600 from the University.

Field Services—Alumni chapters now number 94—50 in-state and 44 out-of-state. Of these, one is an alumnae group in Detroit and four are overseas

(Korea, India, Philippines, and Taiwan). During 1968-1969, all of the in-state and 15 of the out-of-state chapters were visited; in 1969-1970 each of the 50 in-state chapters was visited by the field representative, and the executive director met with 18 out-of-state chapters. Assistant Director Dennis Swan met with the Cedar Rapids group. University speakers went out to all chapters holding annual meetings.

A particular effort was made in 1970 to organize University Committees in the in-state chapters to provide liaison between the association and the local legislators. Twenty-five chapters now have University Committee chairmen.

College Alumni Groups—There are 19 groups organized along college or school lines, each pursuing projects of special interest. Of particular note are the funds that have been set up for four colleges. Members of the School of Dentistry Century Club and the College of Pharmacy Century Mortar Club contribute \$100 per year to their college fund, to be used by the dean to promote scholastic excellence. The Institute of Technology Alumni Association has formed a committee to establish the IT Century Council. The Medical Alumni Association now has 65 microscopes in their Medical Microscope Project for use by entering freshmen. The Alumnae Club's tea and fashion show raised \$2,100 for four full-tuition scholarships.

Special Events and Programs—The Alumni Association remains an active participant in Homecoming activities. "Blacken the Illin-eye" was the slogan for the 1968 Homecoming. The Association gave \$1,000 to the committee to help pay expenses and sponsored the First Annual Downtown Luncheon, at which a capacity crowd of 620 was treated to an old-fashioned pepfest. In 1969 the Association held another luncheon and donated \$1,000 to the Homecoming Committee for expenses. The 1969 slogan was "Give the Bucks a Warmath."

Golden Anniversary Luncheons were held in 1969 for the Class of 1919, and in 1970 for the Class of 1920. Both luncheons were held in May on Cap and Gown Day. With the help of the Association, the Class of 1930 organized a 40th Anniversary Reunion in May of 1970.

More than 300 alumni participated in the tours arranged by the Alumni Association in 1970. Eighty flew to Scandinavia, Russia, and Germany, and 230 took a spring break in Mallorca.

The 65th Annual Meeting of the Board of Directors and Alumni Association membership was held in conjunction with the 20th Annual Honors Presentation on June 3, 1969, at the Hotel Pick-Nicollet. Vice President James Watson presided in place of the hospitalized Ken Glaser, and 458 alumni attended. The 66th Annual Meeting and 21st Annual Honors Presentation were held in the Sheraton-Ritz Hotel on June 2, 1970, with 301 alumni in attendance; James Watson presided.

Alumni Magazine—Ten regular issues of *The Alumni News* were published, September through June, in 1968-1969 and 1969-1970. Each issue was limited to 40 pages, with book review sections inserted into three special issues and an insert in the June 1970 issue on projected development of the University by 1980. Each issue developed a particular facet of University news, such as student activism or housing.

Alumni Club—The University of Minnesota Alumni Club in the Sheraton-Ritz Hotel had a successful sixth and seventh year. Annual dues were raised from the original \$36 to \$42 by action of the Board. Bruno Krempin resigned and was replaced by John Viater as manager of the Club.

Alumni Fund—The chairmen of the Alumni Fund Advisory Committee were Albert H. Heimbach for 1968-1969 and Kenneth C. Glaser for 1969-1970. The Alumni Fund, which operates on a calendar year, received gifts totaling \$315,449.43 in 1968 and \$249,029.41 in 1969. Donors numbered 12,279 in 1968 and 10,840 in 1969. The average gift was \$25.69 in 1968 and \$22.97 in 1969. A full-time position of assistant director, Alumni Fund, was created in 1969 and filled by Dennis Swan, formerly in charge of the college alumni groups.

Other Alumni Association Activities—The Hospital-Money plan, an indemnity program for insured alumni, was added to the already successful MAA

group life insurance program. A new film, "The Changing University," was cosponsored by the Association and National Car Rental; it premiered October 28, 1969. A Legislative Workshop was held at the Alumni Club in November 1968 to acquaint the Minnesota alumni chapter presidents and other alumni leaders with the University's legislative budget requests as presented by President Moos and his staff.

DEPARTMENT OF INTERCOLLEGIATE ATHLETICS

Marshall W. Ryman, *Director*

The 1968-1969 academic year was highlighted by the Minnesota baseball team's second consecutive Big Ten championship. The cross country squad distinguished itself by finishing fourth in NCAA competition after narrowly missing the Big Ten title. First baseman Mike Walseth won All-American honors in baseball and defensive end Bob Stein received Academic All-American recognition. High jumper Tim Heikkila set a new Big Ten record, winning the Conference outdoor title with a leap of seven feet.

Minnesota enjoyed a highly successful year in 1969-1970, winning Big Ten championships in baseball, cross country, and hockey. The hockey Gophers also won the Western Collegiate Hockey Association title. Pacing the cross country team were Garry Bjorklund, Don Timm, and Tom Page, who finished first, second, and third in the Conference meet. Bjorklund also won both the indoor two-mile and outdoor three-mile events in Big Ten championship competition, setting a Conference record for the former with a time of 8:52.5. All-American honors were won by goalie Murray McLachlan and defenseman Wally Olds in hockey and diver Craig Lincoln in swimming. Lincoln won the outdoor AAU and Big Ten three-meter titles, as well as the Canadian one- and three-meter crowns.

Pat Bird replaced Ralph Piper as gymnastics coach prior to the 1968-1969 season, and George Hanson succeeded Bill Fitch as head basketball coach in April 1970. Two black assistant coaches joined the staff in 1970—Maurice Forte in football and Al Nunn in basketball.

The Department made its facilities available for the Minnesota Viking-Green Bay Packer football game on October 5, 1969, after receiving Big Ten approval. The shift to Memorial Stadium was necessitated by a scheduling conflict at Metropolitan Stadium.

Planning was completed on the new Tartan football field in Memorial Stadium, and installation of the blacktop base was begun during spring 1970. This project involved removing the running track and moving the playing area 45 feet closer to the bowl end, improving the view from more than 20,000 seats. Planning was also undertaken for the installation of a Tartan running track in the Bierman Field area to replace the old stadium track. Construction of a 3,000-seat baseball stadium at Bierman Field was begun in fall 1969. When completed, it will be one of the nation's finest baseball facilities.

Other changes in the Gopher athletic plant during the biennium included installation of an automatic watering system at the University Golf Course; remodeling of the "M" Room in Williams Arena; installation of a sports photography laboratory in Cooke Hall; addition of new basketball and hockey scoreboards in Williams Arena, both donated by a Twin Cities-based savings and loan association; and installation of plastic bang boards around the arena ice rink.

Freshmen became eligible for varsity play in all sports except football and basketball during 1969-1970 and made an immediate contribution to Minnesota's competitive ability. Especially outstanding were Bjorklund in cross country and center Mike Antonovich, leading scorer in hockey during the 1969-1970 season. Intercollegiate competition was also launched on a freshman team basis in football, hockey, and baseball.

Two outstanding color football action films were produced for the Department by Sports Films & Talents and cosponsored by Dairy Queen and Twin City Federal. The films, "A Gopher Tale," covering the 1968 season, and "Gopher Tale—1969," have been widely shown and hailed by network officials as two of the finest collegiate football films ever made.

STATISTICS ON INTERCOLLEGIATE ATHLETICS

Sport and Coach	1968-1969											1969-1970											
	Total Games or Meets	Total Big 10 Games or Meets	Total Nonconf. Games or Meets	Total Receiving Athletic Instruction, Including Freshmen	Varsity Candidates	"M" Awards	Freshman Candidates	Freshman Numerals	Games Won	Games Lost	Games Tied	Total Games or Meets	Total Big 10 Games or Meets	Total Nonconf. Games or Meets	Total Receiving Athletic Instruction, Including Freshmen	Varsity Candidates	"M" Awards	Freshman Candidates	Freshman Numerals	Games Won	Games Lost	Games Tied	
Baseball																							
Siebert ...	48	18	30	95	38	21	57	28	36	12	..	50	18	32	116	38	17	78	22	34	16	..	
Basketball																							
Fitch	24	14	10	92	15	8	77	12	12	12	..	24	14	10	26	14	10	12	12	13	11	..	
Cross Country																							
Griak	9	5	4	28	16	7	12	12	5	1	..	8	6	2	26	16	14	10	10	8	..	..
Football																							
Warmath .	10	7	3	119	73	44	46	42	6	4	..	10	7	3	141	76	54	65	35	4	6	..	
Golf																							
Bolstad ...	8	3	5	28	17	6	11	13	Dual meets only		..	6	3	3	30	16	6	14	9	..	..	..
Gymnastics																							
Bird	16	7	9	26	18	10	8	5	8	8	..	13	7	6	32	13	11	19	6	6	6	..	
Hockey																							
Sonmor ..	31	25	6	71	34	19	37	22	15	13	3	28	26	2	45	30	21	15	14	21	11	..	
Swimming																							
Mowerson	9	8	1	41	18	12	23	12	3	6	..	12	9	3	38	24	13	14	10	6	6	..	
Tennis																							
Walsh	18	9	9	23	12	8	11	10	13	5	..	19	9	10	21	13	9	8	8	12	5	..	
Track																							
Griak	14	9	5	82	54	27	28	14	Dual meets only		..	18	5	13	114	76	22	38	23	11	7	..	
Wrestling																							
Johnson ..	21	11	12	41	23	13	18	10	12	10	..	28	11	17	37	28	11	9	5	11	13	1	
TOTAL	208	116	94	646	318	175	328	180	115	76	3	216	115	101	626	344	188	282	154	126	81	1	

The Department again sponsored baseball clinics conducted by Coach Dick Siebert throughout the state as well as free clinics for high school coaches in all ten intercollegiate sports, the athletic director's workshop for high school athletic directors, and a clinic for high school trainers.

The sixth and seventh Gopher Goodwill Tours were conducted by Gopher coaches and staff members during the biennium with programs in many state and border cities. The Department also continued to arrange Graduate "M" Club regional meetings throughout the state.

A most useful innovation was inaugurated in 1969 with the installation of the "Gopher Sports Line," a special phone service that enables media representatives to listen to taped interviews with Gopher coaches and receive other important information simply by dialing a number.

During the 1969-1970 school year, 33 members of the departmental staff attended a two-day Human Relations Workshop in Williams Arena. Aim of the Workshop, conducted by the Reverend Stanley King and Paul Barrington, was to promote sensitivity to the problems of minority groups.

UNIVERSITY OF MINNESOTA, DULUTH

Raymond W. Darland, *Provost*

Activity at the University of Minnesota, Duluth, during the biennium focused on planning. The original UMD campus plan, first announced in 1951 by President J. L. Morrill, projected physical and academic growth to 1970. During 1968-1970, scores of individuals and numerous committees were involved in planning for UMD's needs for the next decade.

The major planning load fell on the Purpose and Scope Subcommittee of the UMD Educational Goals and Facilities Committee. The committee considered a variety of proposals leading to curricular reform through programs emphasizing innovative methods of teaching and learning. Also considered was reform of UMD's administrative structure; search committees were formed in 1969 to interview candidates for the positions of vice provost for academic administration and vice provost for student affairs. Preliminary discussions were held on revision of UMD's divisional system through a possible move toward schools and colleges during the 70's. The subcommittee submitted its preliminary working document to President Malcolm Moos in December 1969.

A Subcommittee on Physical Facilities began planning sessions on growth in buildings and acreage needed for the kind of campus envisioned for UMD by the end of the decade.

Ongoing Projects—The 1969 Minnesota Legislature approved \$1,990,000 for an administration building, \$96,000 for planning a classroom and laboratory building, \$56,000 toward a health service, \$250,000 for rehabilitation and expansion of the campus electrical system, \$25,000 for landscaping, \$275,000 toward student housing, and \$200,000 toward purchase of new land.

Also appropriated was \$340,000 to begin establishment of a Basic Science Program in Medical Education at UMD. Planning, particularly the search for a medical dean, was carried on by UMD officials and members of the Northern Minnesota Council on Medical Education. By the end of the biennium, the committee had narrowed the field from more than 100 candidates to three leading medical administrators, with the expectation that President Moos would name the new dean by July 1970.

A \$50,000 appropriation toward the planning of a School of Social Work at UMD allowed committees to be formed to plan the School's curriculum and the search for a director.

The Graduate School opened a UMD office headed by Assistant Dean M. Harry Lease, Jr.

The North Central Association of Colleges and Secondary Schools team met at UMD and accredited 53 undergraduate majors in 34 fields of study, eight Master of Science and seven Master of Arts programs, two- and four-year Air Force ROTC programs, and preprofessional courses in 18 fields. The Association later approved an M.S. degree in geology and a Specialist Certificate in educational administration.

In June 1969 the Legislature's Interim Building Commission met at UMD to consider new building requests. Included in the requests were a classroom-laboratory building; social science building (phase I); physical education facility; expansion of utilities; housing for 400 students; land acquisition; remodeling of Kirby Student Center, science-mathematics building, social science building, science building, and library; phase I of psychology-speech pathology building; fine arts court and faculty office concourse; residence hall-commons; and landscaping, planning fees, and deficiency on the performing arts building. The total request amounted to \$17,933,000.

Admission Requirements—The Admissions Office continued to admit all applicants within commuting distance of Duluth. Residents outside the commuting area must have a College Aptitude Rating (CAR) of 40 or above to qualify; nonresident students must have a CAR of 50 or above. Transfer students are admitted with advanced standing if they have a cumulative grade-point average of 2.0 (residents) or 2.6 (nonresidents).

Enrollment Changes—Undergraduate enrollment at UMD was 4,898 in fall 1968 and 5,440 in fall 1969, compared to 4,837 in 1967. Graduate student enrollment rose from 80 in 1967 to 102 in 1968 and 139 in 1969.

While enrollment has continued to rise steadily, the makeup of the student body has undergone a change. The campus continues to give primary service to the nine-county region of northeastern Minnesota, but a study made during the biennium showed that the percentage of students from outside the nine-county area doubled in the past five years. In fall 1969, 20 percent of the undergraduate students were from outside the nine-county region, compared to 10 percent in 1964. The bulk of this increase is made up of Twin Cities area students, including 330 from Hennepin County (123 from Minneapolis) and 154 from Ramsey County (110 from St. Paul). Also included are 26 from Chisago County, 19 from Anoka County, 45 from Dakota County, and 56 from Washington County.

Curriculum Changes—Two new departments were established in 1969, the Department of Speech Pathology and Audiology, evolving out of the Department of Speech, and the Department of Special Education. Both departments were assigned to the Division of Education and Psychology. Training programs for teachers of students with special learning difficulties and of the mentally retarded were approved in May 1970. Both programs lead to certification in the specialty areas and are available to undergraduate students and to teachers now in service.

An innovative program with tutorial help and special classes in reading and composition was made available to experimental groups of freshmen during the biennium. The Student Tutorial Program proved beneficial to both the freshmen participating and the volunteer upperclassmen who served as tutors and teachers. Other noteworthy curriculum changes were the abolishment of the English Proficiency Test required of graduating seniors, establishment of a no-lecture biology course, first courses in Afro-American history, introduction of an urban studies major, and approval of graduate programs leading to a Master of Science degree in geology and a Specialist Certificate in educational administration. Graduate degrees in four specialties of chemistry were consolidated into one Master of Science degree with emphasis on organic, inorganic, physical, or analytical chemistry or on biochemistry.

Faculty—Throughout the biennium, UMD faculty have actively engaged in research and publication in addition to their regular teaching load. Over \$100,000 in financial assistance was received for research by UMD faculty in 1968-1969. Research support from all sources has increased 41 percent in the past five years. Research projects included studies of rare earth complexes, an emerging German racial minority, Lake Superior water quality, the East African rift system, and higher education in Nepal. Major publications by faculty members included books on Thoreau, guidance programs, logic, issues in education, international law, graphs, geology, Hungarian authors, and dairy industries.

Campus-Community Projects—A joint research and education program was established between Miller Memorial Hospital and UMD under the guidance

of Dr. Wayland R. Swain. The Department of Sociology developed close ties with the city of Duluth in the planning of a Model Neighborhood program, with several UMD professors directly involved. The UMD Department of Economics and the Minnesota Department of Manpower Services continued to publish the Duluth Business Index, one of the few such economic barometers in the nation.

In 1968 UMD initiated a University Artists Series for Duluth Auditorium performances. Early performers included Jan Peerce, Carlos Montoya, John Gary, David Brubeck, and Philippe Entremont. Cooperating in the project were the College of St. Scholastica and Wisconsin State University at Superior. In summer 1969 UMD cooperated with the same two institutions in the establishment of the Twin Ports Summer Theatre.

A Black Cultural Center was opened in March 1969 in the UMD Library, including a collection of books and periodicals on Afro-American topics. Plans were made for a course in Afro-American history under a grant to Professor Ellis Livingston from the University's Council on Liberal Education. Tweed Gallery prepared 28 of its most valuable paintings for a two-year national tour, and also was featured in a full-page advertisement in *Time* magazine, the ad sponsored by Northern Natural Gas Company.

UNIVERSITY OF MINNESOTA, MORRIS

John Q. Imholte, *Provost*

The 1968-1970 biennium brought to a conclusion the first decade of growth at the University of Minnesota, Morris. The dedication of the campus to a quality liberal arts program and to close and meaningful faculty-student relationships have remained two of the primary purposes. A strengthening of these twin goals is anticipated during the decade of the 1970's.

Organization—A number of organizational changes took place during the biennium. Rodney A. Briggs, dean and then provost of UMM since 1959, left the institution in April 1969 to accept a position in Nigeria. John Q. Imholte, after serving in an interim capacity for a number of months, was named provost in January 1970, and his former position of academic dean was subsequently filled by Gordon R. Bopp.

On July 1, 1969, budgetary responsibility for operation of the Plant Services unit at UMM was transferred to the provost, enabling him to be more effective in coordinating physical and programmatic development on the campus. The knowledge and expertise of the Plant Services operation on the Twin Cities campus continues to be available to the UMM campus.

The West Central School and Experiment Station continues to share some of the facilities on the campus with UMM. However, during the biennium a significant portion of the operation of that unit was moved to the Johnson Farm, one mile east of the campus. Eventually, the entire unit will move to that location.

A new campus constitution was approved during spring 1970. It provides for a Campus Assembly, which includes faculty, students, and Civil Service staff in its membership, to serve as the legislative body for the campus.

Enrollment—Enrollment continued to increase at a steady rate during the biennium. Fall quarter 1968 enrollment was 1,286; the following fall it was 1,510 students. Original enrollment projections had predicted 2,000 students by fall 1975, but it is now believed that this figure will be reached by fall 1972. During the 1969-1970 academic year, the Morris Campus Planning Committee published an interim report supporting an expansion beyond the planning plateau of 2,000 students, provided there would be no sacrifice of educational quality or institutional climate. The Committee expects to publish a complete plan for the next decade by the end of the 1970-1971 academic year.

Students attending the University of Minnesota, Morris, possess high scholastic potential. The median high school rank for entering freshmen during the biennium was at the 83rd percentile. The median MSAT score was at the 70th and at the 73rd percentile during the two years of the biennium; the median ACT composite score was 26 for the biennium.

Although the majority of UMM students continue to come from West Central Minnesota, commuting students made up only 19 percent of the total student body in fall quarter 1969; the remaining 81 percent lived on campus or in rented facilities near the campus. Students during that quarter came from 81 Minnesota counties and 321 Minnesota high schools.

UMM students tend to be the first child in their family to attend college. Over 60 percent of the entering freshmen during the biennium had parents in agricultural, skilled, or semiskilled occupations; slightly less than 40 percent had parents employed in professional, semiprofessional, managerial, official, clerical, sales, or service capacities. Nine percent of the mothers and fathers graduated from college; approximately a fourth of the fathers had an eighth-grade or less education.

Students at UMM continued to exhibit a high level of need for financial aid. During 1968-1969, 54 percent of the students enrolled fall quarter received aid; 48 percent received aid in 1969-1970. This meant an average of \$803 in financial assistance per recipient during 1968-1969 and \$971 per recipient the following year. The total amount of financial aid dollars expended during 1968-1969 was \$555,458; the figure for 1969-1970 was \$705,005. These figures include all types of scholarships and loans, Educational Opportunity Grants, and student employment.

High school students choose to enroll at the University of Minnesota, Morris, for a variety of reasons. The quality of the UMM faculty and the relatively small size of the campus are the two major ones. Students tend to "self-select" UMM, and hence, the number of rejected applicants is only 3 percent of the total number who apply.

Since the first senior class graduated in 1964, 962 students have received their degrees from UMM. To enable graduates to retain an identity with UMM, an independent alumni association was established in 1969.

Academic Program—There were no major additions or subtractions in the curricular program during the biennium. Emphasis was placed on strengthening and consolidating the existing curriculum and making minor modifications where appropriate.

Significant efforts were made to improve teaching and learning effectiveness. A revitalization of both the elementary and secondary education programs was completed. The freshman English program was modified to take into account the higher level of proficiency shown by incoming freshmen. Undergraduate teaching assistant programs were introduced in a number of disciplines. Experimental instructional approaches were tried and adopted in a number of the areas. In particular, the use of televised instruction on the campus increased markedly. Television has been used extensively in many of the education courses, with emphasis on the micro-teaching approach. Particular attention was devoted during the biennium to strengthening the seminar-honors program and to improving the freshman orientation program. An alternate grading system, Satisfactory-Unsatisfactory (S-U), was introduced at the end of the biennium. Some acute equipment needs, particularly in the audiovisual area, were satisfied through the Undergraduate Instructional Equipment grants from the 1969 Legislature.

Summer and evening school programs were continued during the biennium with no significant increase in enrollment or in offerings. Intensified foreign language courses totaling 15 credits each were offered during the summers.

During the 1969-1970 academic year, two accreditation teams visited the campus: a team from the National Council for the Accreditation of Teacher Education in November and a team from the North Central Association of Colleges and Secondary Schools in April. Previously, UMM was included in the overall University of Minnesota accreditation. These two visits were the first evaluations of UMM for separate accreditation. In both instances, the campus received full accreditation as an undergraduate institution for the next ten years.

Over a third of the faculty on campus during the biennium had earned their doctoral degrees and an equal number had completed most of the requirements for their doctorates. The total number of teaching faculty was 76 (full-time equivalent) in 1968-1969 and 82 in 1969-1970. The student-teacher ratio for the last year of the biennium was 18.4 to 1.

The faculty at UMM is dedicated, vigorous, and highly motivated, contributing to a high degree of faculty-student rapport on the campus. During

the biennium, three UMM faculty members received Horace T. Morse-Standard Oil Awards for demonstrated excellence in teaching and advising. Faculty research has been devoted to improvement of undergraduate education at UMM and to projects related to the fields of individual faculty members. An investigation of symbolism in dreams, play, and fantasy supported by the National Science Foundation received renewed support; that project has received almost \$100,000 over the past four years.

Buildings—A number of building projects were completed and others initiated during the biennium. The third unit of the Science Building, an auditorium-type classroom seating 308 students, was completed and ready for use by fall quarter 1968. The first phase of a two-phase library was completed and occupied at the same time, providing space for 200 readers and 60,000 volumes. An additional 400 reader spaces, shelving for approximately 100,000 volumes, and accommodations for a permanent audiovisual center will be provided for in the second phase.

A new heating plant was completed and occupied during early winter 1970. The building recently received an architectural award. The Physical Education Center, which was virtually completed during spring 1970, is the first phase of a three-phase physical education complex. During summer 1970, construction was begun on a new football field, a baseball diamond, a practice field, and a track.

A 248-student dormitory was under construction during the last year of the biennium, and construction of an additional dormitory for 288 students was begun during summer 1970. The latter dormitory, which should be completed by fall 1971, provides for student apartment living rather than the more traditional dormitory facilities. Construction of a new Food Service Building also was begun during summer 1970. This building should be ready for occupancy by late spring or early summer 1971. Planning for the first phase of a new Humanities Building is under way. Construction should begin by late winter or early spring 1971.

A new north road was constructed during the biennium, providing an additional entrance to the campus and helping to reduce traffic flow around the mall at the center of the campus. Landscaping and heating tunnel construction were also carried on during the biennium.

Activities—A large number of the activities at UMM during the biennium have been of benefit both to the campus community and to residents of the surrounding area. Activities included two weekly film series, faculty- and student-directed theatre productions, art shows, and choral and band concerts. The Science Building was dedicated during spring 1970, with noted ecologist Barry Commoner as the main speaker. The Minnesota Orchestra visited Morris for the first time in 1970 under the auspices of UMM. The West Central School and Experiment Station on the campus continued to use UMM facilities on a regular basis for its numerous programs. In addition, campus facilities were utilized by such groups as homemakers, insurance adjusters, and school lunch personnel.

The Midwest Banking Institute held its one-week sessions on the campus during both summers of the biennium. Approximately 150 bankers from Minnesota, the Dakotas, and Wisconsin attended the 1970 Institute. Since its initiation in 1967, this Institute has been an especially popular and successful venture. Reading institutes for elementary school teachers were also conducted on the campus each summer, and an experimental institute for Head Start instructors was held at UMM in summer 1970. The Educational Research and Development Council continued to utilize campus office facilities; the executive secretary of that organization is a member of the UMM faculty.

In addition to continuing Northern Intercollegiate Conference competition in football, basketball, wrestling, baseball, golf, tennis, cross country, track, and field, introduction of women's intercollegiate competition in basketball and volleyball was planned during 1969-1970. A full schedule for these two sports has been set for 1970-1971. UMM won its first Conference championship in baseball in spring 1970. A continued emphasis has been placed upon identification of UMM students participating in intercollegiate athletics as scholar-athletes.

The 1968-1970 biennium was, in the main, a period of consolidation and strengthening of existing programs at UMM. Highlights were the healthy increases in enrollment, the positive reaction of the accreditation teams, and the achievement of significant progress toward the goal of improving the intellectual, academic, and social characteristics of the University of Minnesota, Morris, as a community.

UNIVERSITY OF MINNESOTA TECHNICAL COLLEGE, CROOKSTON

Stanley D. Sahlstrom, *Director*

The University of Minnesota Technical College, Crookston, a coeducational institution authorized by the 1965 Legislature as the University of Minnesota Technical Institute, completed its fourth year of operation during the biennium. In 1969 the College was given its present name. The Associate in Applied Science degree is awarded after two years to students completing requirements within the Agriculture, Business, or Hotel, Restaurant, and Institutional Management Divisions. The General Education Division serves as a supportive unit for the three degree-granting divisions.

Enrollment—The Technical College is designed to serve the entire state; more than 175 Minnesota communities in 70 counties are represented in the student population. Twenty-five percent of the students come from within a 50-mile radius, and 35 percent from beyond a 200-mile radius. Out-of-state enrollment includes men and women from ten states and one foreign country.

From an initial enrollment of 187 students in fall 1966, the 1968 population rose to 370 registered students. The 1969 registration totaled 442. The ratio of men to women in 1969 was approximately 8 to 1. Sixty-three percent of the student body live on the campus. In 1969 the College graduated a class of 86 sophomores and in 1970 a class of 99.

As institutional, scholarship, and federal program funds became available, the UMC Financial Aid Office provided financial assistance to 55 percent of the students enrolled during fall quarter 1968 and 43 percent of those enrolled during fall quarter 1969. Private scholarship contributions made up 24.2 percent of the student financial aid package for 1968-1969. An average of 35 percent was provided through loan assistance during the biennium and an average of 36 percent through wages from work-study programs and student employment.

Curriculum—All courses offered at the Technical College are designed to prepare men and women for positions that require supervisory ability.

The Agriculture Division, the college's largest and most diversified, has added a major in biological laboratory technology and has expanded and upgraded the agricultural aviation major. Business Division offerings now include a fashion merchandising major. In summer 1969, the Food Management Division became the Division of Hotel, Restaurant, and Institutional Management, offering the three majors.

In addition to the Advisory Board from Business and Industry, advisory boards for each of the degree-granting divisions have been organized during the biennium. These boards provide information on needs, trends, potential, and placement in the industries they represent.

Grants totaling \$58,148 were received during the biennium for improvement of instruction. The \$6,500 grant received from the Hill Family Foundation in 1967 for development of a humanities course was continued.

A cooperative program with Corbett Junior College, a private liberal arts institution located in Crookston, was instituted in fall 1968, providing for an exchange of course work by students from the two institutions. This program will be expanded in the coming biennium.

Organization—Immediately after the College began in 1966, President Wilson appointed a Crookston Planning Committee. In 1968 a Crookston Management Committee was appointed by President Moos. The work of these committees has meant increased coordination of long-term planning for both the College and the Northwest Experiment Station.

During 1969-1970 the University of Minnesota Technical College Campus Assembly was formally organized. A constitution and bylaws for the campus were approved and submitted to central administration. There are 15 standing committees, nine of which have student representatives. The students on committees, as well as general representatives from the Student Senate, are allowed to attend Campus Assembly meetings.

There were 56 full- or part-time faculty members at Crookston during the 1969-1970 academic year. The student-teacher ratio during that period was 11.3 to 1.

Facilities—During 1968 a temporary greenhouse was completed, improvements in parking facilities were made, and a new campus entrance sign was erected. The first phase of a four-unit dormitory complex was begun on May 3, 1970. Plans were completed for an agricultural engineering laboratory addition to Owen Hall, with the possibility of completion by midwinter 1970-1971. Plans were also completed for a \$1,525,000 classroom building, with anticipated occupancy by late fall 1971.

Numerous improvements were made in campus facilities. The Learning Resources Center developed a reading-study skills instructional facility accommodating 30 study carrels. Closed-circuit television was installed on the campus, and plans were made to connect five campus buildings for the use of this system. The agricultural research center was completed in fall 1969 and is used jointly by the college and the Northwest Experiment Station. The former health service building has undergone minor remodeling to accommodate all student services as well as several meeting rooms for organizations and committees.

Planning—Since the inception of the Technical College, development of specific curricula to fit its educational purpose has continued. Research has indicated specific requirements and objectives to be met in the preparation of technicians in jobs related to the food and fiber industry. Teaching of the skills and knowledge involved in a specific technology must be complemented by courses providing a background in communication skills, social studies, and related areas. Close liaison with secondary school vocational and guidance departments, with leaders in related business and industry, and with other institutions of higher education, plus the advice and support of potential employers of technicians, aid in making the programs adaptable to the changing needs of society.

With the growth of enrollment during the biennium, the need for classroom and laboratory space necessitated adaptation of existing facilities. Three new agricultural laboratories were provided. Continued cooperation and planning with the superintendent of the Northwest Experiment Station provides for efficient use of Experiment Station facilities for agricultural laboratory experiences. Continued research on needs in curriculum development and major technological services is a responsibility of the entire staff.

Planning for future physical and curricular growth is the aim of the Technical College Long Range Planning Committee, whose recommendations are considered by the Crookston Planning Committee. A ten-year plan has been developed covering location, purpose, and number of new buildings and additions to curricula and programs. This project is aimed at enriching the service of the College and the University to northwestern Minnesota and the state, as well as at developing cooperation with other educational institutions in the area. This campus now serves as an off-campus training center for extension courses of Moorhead State College.

Activities—The gymnasium building was dedicated and named Knutson Hall, honoring Chief Justice Oscar R. Knutson, on February 28, 1969. The food service facility, named Bede Hall after Retta Bede, former teacher and respected citizen of northwestern Minnesota, was dedicated on June 28, 1969. The new dormitory begun in May 1970 will be named to honor the late Regent Herman Skyberg.

As an extension of the greater University in northwestern Minnesota, this campus exposes students, the community, and the region to a variety of events. During the biennium the Concerts and Lectures Committee of the Campus Assembly sponsored the Minnesota Orchestra, participated in the community

Artist Series, and offered lecture series and major programs in the arts. In 1969 the college sponsored a Fine Arts Festival involving the entire community. In 1970 responsibility for this activity moved to the community, with support from the College. The UMC Faculty Women annually sponsor a foreign film series. A full range of cocurricular student activities is available: intramural athletic programs are managed through the housing office and dormitory councils; the College participates in the Minnesota Junior College Conference in football, basketball, track, wrestling, and baseball; and golf, swimming, and tennis are available for student enjoyment.

The College is a center for activities of the Agricultural Extension Service, community organizations, interest groups in the region, counseling and guidance seminars, and Experiment Station meetings. Extensive use of the facilities is made by citizens of the area.

Through the resources of the Northwest Educational Improvement Association, the College has been able to sponsor events bringing the programs of the College to the attention of the general public.

Needs—There are a number of pressing needs if the College is to continue to grow. In order of priority, they are additional dormitory housing for students, better drainage facilities from the campus, additional physical education facilities for women, and additional instructional equipment for classrooms and laboratories.

UNIVERSITY OF MINNESOTA TECHNICAL COLLEGE, WASECA

Edward C. Frederick, *Director*

The 1969 Minnesota Legislature authorized the phasing out of the Southern School of Agriculture, Waseca, and the establishment of a two-year collegiate-level program in agriculture. The last freshman class was accepted at the Southern School of Agriculture in fall 1969. The college program currently being developed is scheduled to begin in fall 1971.

The two-year collegiate technical program, which will be focused on the general needs of agriculture and directed toward the preparation of semi-professionally trained personnel, will lead to an associate degree. Program areas under development include agricultural production, agricultural industries and services, agricultural business, horticultural technology, food technology, and home and family services.

DEPARTMENT OF UNIVERSITY RELATIONS

Duane C. Scribner, *Director*

Changes in mission, structure, and personnel characterized the Department of University Relations during the biennium, much as they characterized the University's administrative structure generally. By July 1970 the Department had acquired a new director, a mission statement based on internal analysis and ratified by central administration, a priority assignment to improve internal communications at the University, a television-radio section and editor in University News Service, and commitments to provide improved coverage of University issues and policies for both internal and external audiences.

In June 1969 the University News Service relocated from Department of University Relations offices in the Hubbard Building, 2675 University Avenue, St. Paul, to 20 Johnston Hall, greatly increasing interaction with newsmen covering campus events and facilitating interaction with campus sources of information. In February 1970, a decision was made to relocate all offices of University Relations in Morrill Hall, and in April 1970, the remaining Hubbard offices of the Department were temporarily relocated in the new Administrative Services Building, 2610 University Avenue, St. Paul, with a tentative September schedule for movement to Morrill Hall.

Administrative and Structural Changes—On January 1, 1969, Mitchell V. Chamley, professor emeritus in the School of Journalism, became acting associate

director of the Department, assuming management responsibility for all of the University Relations effort except the Special Projects Program, which remained under the direction of William L. Nunn, director of University Relations. Professor Charnley left the position September 4, 1969. George Robb, assistant to the vice president for coordinate campuses and educational relationships, served as acting assistant director from October 1 to December 31, 1969. On January 9, 1970, Mr. Nunn became special assistant to the vice president for investments, moving the Special Projects Program into the newly created vice-presidential office. Duane C. Scribner, formerly assistant to the vice president for administration, became director of University Relations on the same date.

Under its new director, the Department underwent an internal analysis in March, April, and May 1970, producing a mission statement that was ratified by the University vice presidents in June and forwarded to the Board of Regents, as the Board had requested, in January 1970. The statement provides official objectives and a rationale for the Department. Internal analysis will continue. In May the vice presidents assigned first priority for the work of the Department in the 1970-1971 academic year to improvement of internal communications at the University. In June 1970 the Department was allowed to establish a new position of associate director to improve departmental management. Also established were a part-time newswriting position and two secretarial positions.

Greater departmental involvement in central policy forums in the last six months of the biennium moved University Relations closer to central administration and enabled it to identify ways in which the external and internal communications missions could be carried out. The Department is now able to supply better reporting and interpreting of developments at the University to the faculty, and staff, the media, and the University's constituent audiences.

Public Information—The University News Service continued its expansion and adopted several new emphases in its coverage of all-University and Twin Cities campus news. Authorization of two and a half additional positions by the end of the biennium made it possible to add a broadcast editor in July 1969 and begin production of special radio and television news features primarily for non-metropolitan media; to employ a part-time broadcast assistant; and to expand campus "beat" coverage early in 1970.

In September 1969 the University News Service studied usage of UNS materials and general coverage of University events in print media outside the metropolitan area. As a result of this study and the increased staffing capability, the News Service by the end of the biennium was covering important meetings on the campus to increase wire service and other out-state reporting of University events, was producing feature stories explaining academic and administrative developments and policies on the campus, was treating coverage of upcoming events on the Twin Cities campus in a more routine way, and was concentrating more effort on helping newsmen obtain their stories on the campus and on suggesting news and feature possibilities to them.

The News Service provided information headquarters for the Earth Week events of April 1970 and the student strike and demonstrations of May and June, stressing information-gathering and surveys rather than the issuance of news releases. Much authoritative information about these events in the *Minnesota Daily* and in Minnesota, regional, and national media was the direct result of activity by the University News Service. Increasing UNS staff size also made possible Saturday office hours and lengthened weekday schedules.

In April 1970 a news conference room and production studio for radio materials were authorized as part of the remodeling of the Morrill Hall area to be occupied by the Department of University Relations.

The director of the Department functioned as a central information officer and media adviser for central administration during the student strike and demonstrations of May and June 1970, assisting in the preparation of official statements, producing regular summaries of all-University events related to the strike and demonstrations, and directing coverage of significant events for the Department's staff and parents' publications. News releases and features prepared by staff members throughout University Relations became increasingly important inside and outside the University as authoritative statements concerning University events.

Publications—The Department continued to publish the *Biennial Report*, the legislative booklet *Needs of the University of Minnesota*, the *Student-Staff Directory*, the *Official Daily Bulletin*, the *Calendar of Events*, and the *Cap and Gown Day Program* during the biennium. Programs, citations, speeches, and other publications required for specific events occurring on the University's Twin Cities campus were also prepared by the Department.

In September 1969 the *Minnesotan* was discontinued and replaced by *University Report*, a semimonthly newsletter for staff and faculty of the Twin Cities campus.

Reports From Your University of Minnesota underwent changes in name and format, becoming a quarterly newsletter named *Report to Parents*.

Both *University Report* and *Report to Parents* underwent substantial changes in emphasis during the last four months of the biennium, concentrating more on interpretation and analysis of University issues and policies and less on brief news summaries. In June 1970 the Department received authorization to expand the volume and/or frequency of both publications and to establish a new weekly briefing bulletin from the Office of the President for internal distribution throughout the University system.

As Others See Us, a compilation of editorial comments about the University from throughout the state, was reinstated as a monthly publication of the Department, for circulation to more than 600 staff, faculty, and student leaders at the University.

Commencements, Special Events, and Services—The Department continued to administer University commencements, special events, and University awards during the biennium.

Special observance of University of Minnesota Week was suspended in 1970, pending departmental study of the event. The Department assumed an advisory role in the management of Twin Cities campus Homecoming, which was assigned in April 1970 to the Alumni Association and the Department of Intercollegiate Athletics.

In October and November 1969, two staff members visited a number of universities throughout the nation to study their university relations practices and especially their handling of commencements and special events. These reports became part of the general internal analysis and following actions that took place in spring 1970.

In December 1969 one position assigned to commencements and special events was reassigned to the University News Service.

University Relations expanded its tour service for the Twin Cities campus early in 1970, began to develop information files for use by tour guides and others, and initiated action to expand gradually its services to outside groups seeking University speakers for various occasions. As a first step toward a coordinated speakers' bureau, the Department surveyed Minnesota high schools and the Twin Cities campus faculty in February 1970 to determine the availability of high school commencements and potential commencement speakers. As a result of this effort, 13 Twin Cities campus speakers were provided for high school commencements outside the metropolitan area, and the coordinate campuses were recommended as sources for several other high schools seeking speakers. The Department and the speakers considered the attempt successful enough to warrant a more systematic effort for the 1970-1971 commencement season and an expansion of the speaker service to include other groups seeking speakers.

In January 1970, at the request of the President and vice presidents, the Department undertook a study of University of Minnesota commencements. After a series of meetings that included one with an ad hoc committee of faculty and students appointed by the president of the Minnesota Student Association, the Department recommended that compulsory attendance at Twin Cities campus commencements be waived for the March and June commencements. The recommendation was accepted by central administration and the University Senate Administrative Committee; several requests by individual colleges and schools to substitute their own recognition events for attendance at June commencement were also honored.

In April 1970 Department recommendations for 1970-1971 were accepted by central administration and the Administrative Committee and forwarded to the

University Senate. On June 4, 1970, the Senate passed a resolution making attendance voluntary at all University commencements, cutting the number of Twin Cities all-campus commencements from five per year to three, and authorizing the development of individual graduation events in schools, colleges, and institutes headed by deans. Administration of all-campus commencements was left to the Department of University Relations, which was asked to organize a faculty-student committee to work out guidelines and financing for individual collegiate events that might be held at the end of any quarter or summer session. The Senate resolution was ratified by the Board of Regents at its June 1970 meeting. The changes are intended to decentralize and personalize graduation events on the Twin Cities campus and to reduce both the size of, and negative responses to, compulsory all-campus ceremonies.

Fund-Raising—All fund-raising activities were removed from the Department of University Relations in January 1970, when the Special Projects Program was transferred to the Office of the Vice President for Investments.

Divisions of Finance, Planning, and Operations

Hale Champion, *Vice President*

The Office of the Vice President for Planning and Operations was established effective September 1, 1969, by President Moos and the Board of Regents, and Hale Champion was appointed to the post. The Office joined the functions of the Planning Office and the divisions of business administration, including budget, physical plant, and service operations. The Office of Vice President for Investments was created at the same time, and Roger Kennedy was appointed to the position. When Vice President Kennedy resigned in July 1970, his investment responsibilities were assigned to Vice President Champion, whose title became vice president for finance, planning, and operations.

The Office was reorganized in order to carry out its expanded mission. Clinton T. Johnson, treasurer and assistant vice president for business administration, is now responsible for the Business Office, insurance and retirement, contracts and grants, temporary investments, data processing, purchasing, bank relationships, and field auditing. Assistant Vice President Donald K. McInnes succeeded Assistant Vice President Roy Lund, who retired July 1, 1970, and physical planning and design as well as space allocation were added to the office's physical construction responsibilities.

C. Luverne Carlson was promoted from director of University Services to assistant vice president for support services and operations; supervision of buildings and grounds, maintenance and remodeling, flight facilities, parking, and bookstores were assigned to his office. Others reporting to the Office of the Vice President for Finance, Planning, and Operations are the director of personnel, the budget officer, the fiscal planning officer, and the investment counsel.

BUSINESS OFFICE

Clinton T. Johnson, *Assistant Vice President*

Included in the functions of the Business Office are budget control, payroll, invoice payment, and accounting. The Bursar's Office, Property Accounting, the Treasurer's Office, and the Research Contracts and Grants Division are important units performing services in the Business Office. The Purchasing Department and the General and Chemical Storehouses perform related functions within this administration.

The Business Office has made several procedural changes, including adoption of the principle of negative approval of vendor invoices. With this system, departments receive one copy of an invoice and are instructed to notify the Business Office only if they do not want an invoice paid; the Business Office pays all other invoices in ten days. A new format was designed for fiscal status reports for research contracts and grants, and the computer was used for the first time in preparation of the University budget.

Research—The University's expenditures for research almost tripled during the last decade, with increased support from federal and state governments, business, and foundations. The accompanying schedule shows sources of funds and growth of research expenditures by years. For 1969-1970, for example, research support was provided as follows:

Source of Funds	Amount	Percent of Total
The Federal Government	\$29,411,049	77.4
The State	3,744,324	9.9
Gifts	4,343,472	11.4
Income from Endowments	497,367	1.3
TOTAL	\$37,996,212	100.0

A further explanation of each of these categories follows.

From the Federal Government—This figure includes direct federal appropriations (Bankhead-Jones, Consolidated Hatch Fund, and others); income from federal agencies for defense contracts research (Departments of the Air Force, Army, and Navy; Atomic Energy Commission; and others); and grants from other federal agencies (National Science Foundation, U.S. Public Health Service, Department of Agriculture, and others). In 1969-1970, direct federal appropriations totaled \$1,432,290 and income from federal agencies totaled \$27,978,759.

From State Funds—This figure includes special state appropriations for research in areas such as medicine, agriculture, psychiatry, and beneficiation of manganiferous ore. It also includes grants from state agencies such as the Department of Highways, the Department of Dairy Industries, and the Iron Range Resources and Rehabilitation Commission. In 1969-1970, special state appropriations totaled \$3,371,390 and grants from state agencies totaled \$372,934.

From Gifts—This figure includes gifts and grants from businesses and industries, foundations, associations, individuals, and others. These funds are expendable for specific research. During 1969-1970, businesses and industries such as the Harza Engineering Company and the Minnesota Turkey Growers Association contributed \$982,852, foundations such as the Ford Foundation and associations such as the American Cancer Society and the Minnesota Heart Association contributed \$1,853,026, and individuals and miscellaneous sources contributed \$1,507,594.

From Endowment Income—This category includes, for the most part, income from endowments such as the American Legion Memorial Heart Research Professorship and the Neurology Research Fund. Some gifts are given to the credit of an endowment fund with the designation that a portion be spent outright rather than invested. The total amount of funds from endowment income expended for research in 1969-1970 was \$497,367.

Endowment and Investments—The main component of the University endowment, the Permanent University Fund, had a value of \$34,762,398.59 on June 30, 1970. The Group Investment Fund was valued at \$26,833,423.20. Separately Invested Funds totaled \$4,617,663.10 and an additional \$864,628.82 is held in trust for the University. On June 30, 1970, the total endowments of the University were valued at \$67,078,113.71.

During the biennium, the University investment policy was modified in accordance with the "total income concept" of investment earnings to allow the total income from investments, including capital gains, to be available for current needs. In an effort to improve the yield on the University's investment funds, substantial responsibility was given to a selected group of investment managers, who, as of June 30, 1970, were handling the investment of \$34,682,839.66 of the Permanent University Fund, \$24,300,568.27 of the Group Investment Fund, and \$2,361,179.41 of the Separately Invested Funds. The Permanent University Fund and the Group Investment Fund are valued at market.

The Group Investment Fund, established to manage the large number of individual gifts, is operated on a market value basis. New funds entering the Group

Investment Fund or additions to old funds are assigned units of participation that are determined by dividing the amount received by the unit market value, which is computed at the beginning of each quarter. The unit valuation at the inception of the Group Investment Fund on June 30, 1954, was \$10.00. The value of each of the 1,923,340 participating units as of June 30, 1970, was \$13.83. During the biennium, endowment gifts and bequests included the following:

- Marshal and Margaret Alworth Fund: \$75,000*—The proceeds from the eventual sale of properties currently being acquired by the University are to be applied to the construction of a planetarium on the Duluth campus.
- Phosa D. Broderick Trust: \$50,762*—The earnings from the bequest of Phosa D. Broderick are to be used to provide scholarships for the benefit of deserving students.
- John B. Cronin Scholarship Endowment: \$426,070*—Additional gifts to this existing endowment fund were received during the biennium. The earnings of the fund are to be used to assist academically qualified but needy students to attend the University.
- Lewis S. and Florence E. Diamond Student Aid Fund: \$65,040*—The earnings of the fund are to be used to assist worthy and needy students of the University.
- Dwan Family Fund: \$99,726*—Additional gifts to this existing endowment fund were received during the biennium. These gifts and the earnings therefrom are to be used to aid and foster cardiovascular research on children.
- Richard M. Elliott Memorial Fund: \$25,800*—The earnings from the bequest of Richard M. Elliott are to be used for the benefit of the Department of Psychology or of students majoring in psychology.
- Dr. Richard W. Giere Torske Klubben Fellowship: \$30,000*—The earnings of the fund are to be used to support the Norwegian American Graduate Fellowship Fund.
- Charles M. Goethe Memorial Fund in Eugenics: \$185,329*—This bequest is to be used by the Dight Institute for its work in eugenics.
- Gertrude Goodridge Professional Responsibility Fund: \$204,699*—The earnings from this fund are to be used by the Law School to promote ethical conduct in the legal profession.
- Dora Hanson Fellowship for Graduate Medical Students: \$25,000*—The earnings from the bequest of Doris M. Cochrane are to be used to establish student fellowships in the Medical School.
- Robert C. McClure and Bruno H. Greene Law Scholarship: \$25,000*—The earnings from the gift from the Polly Annenberg Levee Charitable Trust are to be used for scholarship assistance in the Law School.
- Clifford T. McColgan Memorial Fund: \$32,200*—The earnings of the bequest of Clifford T. McColgan are to be used to support Masonic Memorial Hospital patients who are in financial need.
- Thom M. and Druscilla Paist McGill Memorial Fund: \$23,857*—The earnings of this fund are to be used for scholarships or loans for students of the University majoring in horticulture.
- Alfred D. Milburn Medical School Scholarship: \$67,789*—The bequest of Alfred D. Milburn is to be used to support scholarship aid for medical students.
- Ophthalmology Service Fund: \$360,927*—Additional gifts to this existing endowment fund were received during the biennium. The fund is to be used by the Department of Ophthalmology for equipment purchases, for research and teaching service payments, for administrative enterprises, or for other purposes within general University regulations.
- Martin B. Ruud Memorial Fund Fellowship: \$90,154*—The earnings from the bequest of Christine B. Ruud are to be used for fellowships or scholarships in the Department of English.
- Benjamin Shapiro Memorial Fund: \$25,000*—The earnings from this gift from Sidney K. Shapiro, M.D., are to be used to further resident training in neurology.
- Royal A. Stone Memorial Fund: \$58,938*—Additional gifts to this existing fund were received during the biennium. The earnings therefrom are to be used for scholarship assistance for Law School students.
- University of Minnesota Alumni Endowment Fund: \$149,337*—The income from this fund is to be used for general University purposes at the discretion of the directors of the fund.

Numerous other gifts were received for various University purposes. The income from the Permanent University Fund for the year ending June 30, 1970, amounted to \$2,034,057.42. The income from the other endowment funds totaled \$2,232,152.89. The following summaries indicate the composition by responsibility of the University portfolio as of June 30, 1970.

BIENNIAL REPORT

SUMMARY OF GROUP INVESTMENT FUND AND PERMANENT UNIVERSITY FUND
June 30, 1970

	Group Investment Fund	Permanent University Fund	Total	Percent
Funds Invested by Investment Managers:				
Bond Manager:				
Thorndike, Doran, Paine and Lewis	\$11,534,509.58	\$24,688,546.60	\$36,223,056.18	58.8
Equity Managers:				
T. Rowe Price and Associates	6,066,638.57	1,920,806.83	7,987,445.40	13.0
Brokaw, Schaenen, Clancy and Company	6,699,420.12	..	6,699,420.12	10.9
Moody's Alliance Capital Corporation .....	..	8,073,486.23	8,073,486.23	13.1
Subtotal	\$24,300,568.27	\$34,682,839.66	\$58,983,407.93	95.8
Funds Held by Regents:				
Cash	\$ 235,526.83	\$ 659.70	\$ 236,186.53	.4
Securities	2,297,328.10	78,899.23	2,376,227.33	3.8
Subtotal	\$ 2,532,854.93	\$ 79,558.93	\$ 2,612,413.86	4.2
GRAND TOTAL	\$26,833,423.20	\$34,762,398.59	\$61,595,821.79	100.0

SUMMARY OF SEPARATELY INVESTED FUNDS AND FUNDS HELD IN TRUST
June 30, 1970

		Total	Percent
Separately Invested Funds:			
Funds Invested by Investment Managers:			
Northwestern National Bank, Trust Department— Minneapolis		\$1,047,070.94	
First Trust Company of St. Paul		1,314,108.47	51.1
Funds Held by Regents:			
Cash		\$ 297,561.00	6.4
Investments			
Securities	\$1,456,398.01		
Less Unamortized Discount	3,821.32	\$1,452,576.69	31.5
Real Estate		506,346.00	11.0
Subtotal		\$4,617,663.10	100.0
Funds Held in Trust:			
Total Funds in Trust		\$ 864,628.82	
GRAND TOTAL		\$5,482,291.92	

SUMMARY OF RESEARCH EXPENDITURES FROM ENDOWMENT INCOME, GIFTS, GRANTS, AND SPECIAL APPROPRIATIONS
FROM THE STATE AND FEDERAL GOVERNMENTS
1948-1949 to 1969-1970

Year	Total			Governmental Sources						Nongovernmental Sources								
	No.	Amount	% Inc. Over Prev. Year	Total		State ¹		Federal ²		Gifts		Endowments		% Inc. Over Prev. Year	% Inc. Over Prev. Year			
				No.	Amount	% Inc. Over Prev. Year	No.	Amount	% Inc. Over Prev. Year	No.	Amount	% Inc. Over Prev. Year	No.			Amount		
1969-70	1,675	\$ 37,996,211.99	6.7	1,050	\$ 33,155,373.40	5.5	74	\$ 3,744,324.16	17.2	976	\$ 29,411,049.24	4.1	592	\$ 4,343,471.91	14.7	33	\$ 497,366.68	15.4
1968-69	1,700	35,443,376.25	-0.5	1,074	31,318,321.96	-2.9	66	3,099,152.66	17.0	1,008	28,219,169.30	-4.7	596	3,704,353.88	21.8	30	420,700.41	31.7
1967-68	1,765	35,614,573.60	11.0	1,164	32,254,659.85	11.0	75	2,647,805.00	11.7	1,089	29,606,854.85	10.9	569	3,040,401.28	10.8	32	319,512.47	44.9
1966-67	1,676	32,362,642.76	11.2	1,097	29,315,680.26	11.2	45	2,267,874.14	11.0	1,052	27,047,806.12	11.3	548	2,826,394.74	10.9	31	220,567.76	1.0
1965-66	1,629	28,895,995.33	14.3	1,070	26,094,555.25	15.5	35	2,058,517.87	25.7	1,035	24,036,037.38	14.7	532	2,583,799.97	3.4	27	217,640.11	10.0
1964-65	1,540	25,286,287.24	10.8	984	22,588,834.97	11.9	36	1,637,064.96	4.1	948	20,951,770.01	12.6	530	2,499,623.80	2.2	26	197,828.47	3.7
1963-64	1,510	22,820,963.99	16.1	973	20,183,739.14	19.8	31	1,571,869.26	11.2	942	18,611,869.88	20.5	508	2,446,408.54	7.1	29	190,816.31	8.7
1962-63	1,404	19,661,370.61	13.6	915	16,853,271.69	19.0	30	1,413,749.81	4.1	885	15,439,521.88	20.6	462	2,632,608.01	5.4	27	175,490.91	51.1
1961-62	1,289	17,304,403.30	13.6	800	14,160,646.61	16.3	29	1,357,443.09	4.2	772	12,803,203.52	16.7	460	2,781,710.71	1.7	29	362,045.98	13.0
1960-61	1,216	15,230,176.63	10.7	709	12,173,406.87	12.1	26	1,303,289.22	7.2	683	10,870,117.65	12.7	475	2,736,419.68	6.1	32	320,350.08	1.2
1959-60	1,139	13,762,411.84	18.1	659	10,860,273.21	23.0	26	1,215,406.19	0.8	633	9,644,867.02	26.5	453	2,578,060.38	2.9	27	324,078.25	2.4
1958-59	995	11,652,151.91	13.1	530	8,830,376.35	15.4	29	1,205,163.57	9.8	501	7,625,212.78	16.3	439	2,505,343.69	5.5	26	316,431.87	15.5
1957-58	929	10,303,713.84	23.1	465	7,654,218.77	22.5	30	1,097,510.26	19.1	435	6,556,708.51	23.1	443	2,375,477.08	28.6	21	274,017.99	0.5
1956-57	837	8,369,377.76	12.9	411	6,249,255.14	12.6	21	921,622.33	2.2	390	5,327,632.81	14.6	401	1,847,471.60	14.8	25	272,651.02	7.6
1955-56	748	7,411,114.04	3.5	357	5,549,000.49	0.1	21	902,076.59	5.3	336	4,646,923.90	1.1	363	1,608,640.78	18.4	28	253,472.77	1.6
1954-55	721	7,161,320.64	6.2	339	5,553,604.68	6.9	21	856,276.63	9.4	318	4,697,328.05	6.5	356	1,358,218.30	3.6	26	249,497.66	4.6
1953-54	640	6,742,752.94	8.4	310	5,192,970.05	4.3	26	782,668.69	3.1	284	4,410,301.36	4.5	308	1,311,335.51	23.6	22	238,447.38	33.9
1952-53	556	6,217,782.70	14.9	280	4,978,656.62	16.9	26	759,426.26	4.4	254	4,219,230.36	19.5	256	1,061,103.63	7.8	20	178,022.45	5.8
1951-52	549	5,411,886.92	33.3	257	4,259,556.27	38.5	27	727,744.96	32.6	230	3,531,811.31	39.8	274	984,127.92	21.5	18	168,202.73	3.3
1950-51	463	4,058,614.66	20.5	202	3,074,612.59	27.5	18	549,006.33	0.4	184	2,525,606.26	35.9	246	810,077.45	0.7	15	173,924.62	19.1
1949-50	426	3,367,130.06	8.1	165	2,405,242.21	6.8	21	546,825.40	18.8	144	1,858,416.81	3.8	246	815,810.40	7.6	15	146,077.45	38.1
1948-49	386	3,114,927.24	18.8	133	2,251,224.44	27.5	18	460,436.53	41.0	115	1,790,787.91	35.5	243	757,937.73	0.2	10	105,765.07	6.5
TOTAL		\$358,189,186.25			\$304,957,480.82			\$31,125,253.91			\$273,832,226.91			\$47,608,796.99			\$5,622,908.44	

¹ State sources include state appropriations and contracts.

² Federal sources include federal appropriations, contracts, and grants.

Notes: A. Figures do not include expenditures for nonresearch fellowships.

B. No research expenditures on the Support Fund have been included in these totals.

Source: Financial Reports

SUMMARY OF CASH GIFTS, 1968-1970
(Exclusive of Federal and State)

	1968-1969	1969-1970
Expendable		
For Education and Research	\$ 3,990,990.47	\$ 4,585,200.39
For Student Aid	1,790,125.01	3,099,608.52
For Other Purposes	4,144,469.98	3,700,417.02
Total Expendable	\$ 9,925,585.46	\$11,385,225.93
Capital		
Endowment		
For Education and Research	\$ 722,293.31	\$ 296,664.08
For Student Aid	200,564.69	375,016.24
Subject to Annuity and Residual Trust Agreement	59,502.82	294.11
For Other Purposes	364,735.73	52,031.19
Operating Temporarily as an Endowment	222,338.62	53,767.37
Loan Funds	102,271.77	140,501.86
Plant Funds	712,052.43	679,942.65
Total Capital	\$ 2,383,759.37	\$ 1,598,217.50
GRAND TOTAL	\$12,309,344.83	\$12,983,443.43

DEPARTMENT OF CIVIL SERVICE PERSONNEL

Frank Pieper, *Director*

The two years of the 1968-1970 biennium provided contrasting problems for the Department of Civil Service Personnel.

In 1968-1969, high employment and inflation in the economy as a whole were accompanied by the problems of high turnover and recruiting difficulty being experienced by all employers. The University was in a particularly difficult position because this was the second year of a legislative biennium, in which no major revision of the salary plan could take place.

In 1969-1970, when restrictions placed on the economy to curb inflation also produced unemployment, recruitment difficulties eased. High turnover continued at the University, however, because of the wage increase policies adopted by the Legislature for use with the new salary plan.

The number of University Civil Service employees continued to grow. During 1969-1970 the average number of full-time Civil Service positions was approximately 8,000, and the average number of part-time employees including students was 5,100.

The Department of Civil Service Personnel, in addition to meeting the problems imposed by the economy and the growing University, initiated innovative programs for employment of the disadvantaged. It also adopted a new applicant testing program.

Position Classification—The position classification plan, at the end of the biennium, included 730 different classes of work covering an average of 13,100 full-time and part-time Civil Service positions (including student positions). The administration of this plan involved the following activities during the biennium:

New positions increased 13 percent over the number created the previous biennium. Of the 2,952 new positions established by departments (including 1,036 student positions and 499 part-time temporary nonstudent positions), 2,781 were classified as requested by the department, 72 at a lower level, 52 at a higher level, and 47 in a different class at the same salary level. There were 2.2 percent fewer requests for reclassification of positions than in the last biennium. Of the 973 requests submitted, 669, or approximately 68.7 percent, were approved.

Position vacancies requiring classification study increased 17.6 percent over those in the last biennium. A total of 6,460 requests to fill vacant positions were submitted (including 1,365 student positions and 335 part-time or temporary non-

student positions), of which 56 were reclassified to a lower level, 53 to a higher level, and 51 to a different class at the same salary level. The total of 1,365 student positions requiring classification study (the simple student jobs are not studied) was an increase of about 17 percent over the number requiring study in the last biennium.

Of 267 positions studied in connection with classification surveys of complete series of classes, 66 were assigned to a higher class, 4 to a lower class, and 12 to a different class at the same salary level. Seventy-nine new classes were established, and 63 obsolete classes were eliminated. Salary range assignments were changed for 66 classes (in addition to reassignment of all classes to different pay ranges in the new salary plan effective July 1, 1969).

Salary Plan—During the first half of the biennium, the system of merit increases established during the previous fiscal year was continued. On July 1, 1968, and again on January 1, 1969, departments were allowed to give 50 percent of their eligible employees in steps two through four of plan "A" or in steps two or three of plan "B" a merit increase for up-to-standard work. In higher steps, 33 percent of eligible employees could receive increases for outstanding work. Withholding of merit increases for some employees within the percentage figures allowed other employees to be given increases of more than one step for exceptional performance.

This merit increase program was praised by many supervisors and administrators for its salutary effects on employee performance. It was criticized by others, however, because of its lack of sufficient funding and the resultant complicated procedures required to carry it out. Union groups condemned supervisors for allegedly administering the merit plan on a favoritism basis.

During winter 1968-1969, the director and associate director worked with the State Civil Service Department in an attempt to influence the development of the 1969-1971 salary plan being presented to the Legislature. The State Civil Service Department, the Governor, and legislators had apparently heard so much criticism of the merit increase system that they could not be convinced to recommend its continuation. Instead, the State Civil Service Department recommended a system of variable length salary ranges with substantially increased beginning rates but providing only across-the-board increases of 8 percent on July 1, 1969, and 4 percent on July 1, 1970, for incumbent employees.

The proposals of the State Civil Service Department, adopted by the Legislature, resulted in substantially increased recruiting rates for most classes of work but compressed incumbent employees into the beginning steps of the new ranges on July 1, 1969, because they could move only 8 percent or to the new minimum. Long-tenure employees at the University protested this treatment vehemently, with one substantial group marching on Morrill Hall and holding a rally. Representatives of the group talked with the Civil Service Committee and the Executive Committee of the Board of Regents. Other groups of employees, supervisors, and department heads protested to the director of the Department of Civil Service Personnel and to the University Civil Service Committee. These people were told that under the existing interpretation of the "comparability" clause included in the Educational Appropriations Act, the University was required to match State Civil Service salary ranges for comparable classes of work and to follow the salary increase administration policies funded by the Legislature.

The bitterness caused by the rigid salary increase policies plagued personnel administration at the University during the entire second year of the biennium. The impossibility of relieving the salary compression and the lack of provision for merit increases placed great pressure on other parts of the personnel program such as the position classification plan. Employees frustrated by the salary compression sought a variety of routes to relieve their frustrations, such as requesting reclassification of their positions.

Concerned about these problems, the Civil Service Committee proposed to the President that the meaning of the "comparability" clause in the appropriation acts be clarified. The Committee noted that the clause reads as follows:

From the appropriation made to the University of Minnesota by this act and from other sources all non-academic employees shall be paid a salary comparable to the salaries paid to state employees in the classified state civil service.

The Committee proposed that the following statement of clarification as to the meaning of the clause be adopted:

The "comparability" clause in State of Minnesota legislative acts relating to the appropriation of funds to the University of Minnesota means that the first step in the pay range assigned to a class of work in the University Civil Service shall have a value equal to the first step of the pay range assigned to the identical counterpart class of work in the State Civil Service if one exists, or a value relative to the first steps of the pay ranges assigned to relatively comparable classes of work in the State Civil Service, if such classes exist. Salary increase policies for University Civil Service employees shall be collectively comparable in cost to those governing State Civil Service employees.

The President and vice presidents agreed to adopt this statement as basic internal University policy in January 1970.

Applicant Recruiting and Screening—During the first year of the biennium, as the tight labor market continued, the number of vacancies in University Civil Service positions increased steadily, reaching an all-time high of 404 in April 1969. By that time, vacancies in clerical office positions (clerk, clerk typist, secretary) had increased 130 percent over those in April of the previous year, from 82 to 189. The new salary plan, effective July 1, 1969, made recruiting more successful; during July 1969, the number of clerical vacancies was reduced 54 percent to 86 and had dropped to a low of 37 by November 1969. However, the new salary plan did not help as much as had been hoped. The number of vacancies in all classes of work at the end of the biennium (226) was approximately the same as at the end of the previous biennium.

The turnover rate for full-time employees on the regular payroll increased from 3.3 percent to 3.5 percent per month during the biennium. The average yearly turnover rate was 41.7 percent of the full-time staff, compared to 40 percent during the previous biennium.

During the 1968-1970 biennium, there were 32,322 applicants for nonstudent positions, 14,471 in 1968-1969 and 17,851 in 1969-1970. During the 1968-1969 fiscal year, applicants included 15,620 who came in person to the personnel office (an average of 1,300 per month or 62 per work day); 803 who applied by mail; and 1,428 such as nurses, skilled tradesmen, and branch campus people who were hired through a decentralized process at the location of their work. During the biennium, 26,099 interviews were conducted in the Department of Civil Service Personnel, and 10,327 applicants were tested. As a result, 17,335 applicants (66 percent of those interviewed) were referred to vacancies, and 10,229 (59 percent of those referred) were hired. In other words, approximately 81 percent of all applicant contacts resulted in interviews, 53 percent of the contacts were referred as qualified for jobs, and 31 percent were hired. Compared to the second year of the last biennium, during the second year of this biennium there was a 31.8 percent increase in employment contacts, a 52.4 percent increase in interviews, a 57.3 percent increase in referrals, and a 44.7 percent increase in hires. Several monthly work-load records were broken: the all-time high for interviews occurred in September 1969, when 1,676 applicants were interviewed; referrals that month numbered 1,101; the all-time high for hires occurred in June 1969, with 638 persons added to the payroll; and applicant contacts reached an all-time high of 2,077 in June 1970.

The tight labor market that continued during 1968-1969 required intensification of the new and unusual recruiting programs developed during the previous biennium. Heavy emphasis was placed on personal contact by the full-time recruiter with the applicant sources that had proved most productive in the previous year: vocational schools were the most satisfactory source of people. Increased use was made of printed recruiting materials and advertising. The Editorial Services Division designed and supervised the printing of 26 pieces of recruiting literature and wrote or edited a wide variety of newspaper help-wanted and professional journal advertisements. A self-mailer poster was sent to high schools and vocational schools and a three-panel display was used on 300 city buses.

SOS, the office "overload" service managed by the Department of Civil Service Personnel, continued to ease the problems faced by University departments when office positions could not be filled immediately. The average number of SOS employees working each payroll period was 63 (72 during 1968-1969 and 54 during 1969-1970). These people worked an average of 23 hours per week

and their average annual payroll totaled more than \$165,000. During the biennium, 1,092 requests for SOS workers were received from University departments and 1,044 temporary positions were filled.

A major innovation in the applicant screening process was the replacement of most application tests with the General Aptitude Test Battery (GATB), a group of tests developed by the U.S. Manpower Service covering many basic abilities. The GATB is the best validated battery of aptitude tests in existence, and the University is the first private employer permitted to administer it to applicants. The contract for its use provides for intensive training of Department of Civil Service Personnel staff in its use, for close security on test forms and results, and for research to be conducted by the Manpower Service for further validation of the battery on the types of occupations found in the University.

Personnel Records—The Personnel Records section, responsible for processing and filing Civil Service and academic personnel documents, processed 7 percent more documents during the biennium than in the previous biennium; 93,265 documents were processed in 1968-1970 compared to 87,094 in 1966-1968, an increase of 6,171 documents. The largest increase was in the number of documents for Civil Service employees, up from 30,966 to 35,511 or 14.7 percent. Student documents decreased 4.8 percent to 23,588 and academic documents increased 9 percent to 34,166.

The increase in the number of Civil Service documents occurred entirely in the first year of the biennium as salary adjustment forms were used to give merit increases that year, after probation, and on January 1, 1969. Total Civil Service documents processed decreased from 18,961 in 1968-1969 to 16,550 in 1969-70, a drop of 12.7 percent. The decrease was due to the change from the merit increase to the automatic increase system.

Work-load problems were somewhat alleviated in 1969-1970 when the Department was allocated approximately 800 additional square feet of space and it was possible to expand filing space and to add a full-time senior clerk position. Filing space problems were still critical at the end of the biennium; seven large file cabinets had to be installed in a basement hallway.

Employee Training—Classroom attendance totaling 2,537 during the biennium set a new record for participation in orientation and training programs. Training Division staff were also consulted privately about such matters as supervisory problems, self-development plans, and business procedure difficulties. This indicates a continuing need for training in many areas, but with a staff of three trainers it is not possible to meet all training demands in an organization as large as the University.

Central Training Programs

ORIENTATION—A weekly "get acquainted" session was begun in August 1969 for all new employees in clerical and secretarial positions. The 3½-hour meeting is designed to help these employees, many of whom are in key office positions, gain a feeling of confidence as they begin their new jobs. It consists of a brief outline of the work of the University, a demonstration of telephone and receptionist techniques, and a listing of sources of information about the University. Informational materials in the orientation kit are discussed and questions are answered. By June 30, 1970, 732 new employees had attended.

BUSINESS PROCEDURES—This course, now in its nineteenth year, was attended by 468 employees during the biennium, an increase from 359 in the preceding biennium. The *Manual of Business Procedures* was revised each year of the biennium.

ENGLISH REFRESHER—This course was offered semi-annually on the Twin Cities campus and once during the biennium in Duluth. Total attendance was 92, compared with 62 the previous biennium.

TYPING REFRESHER—Through a special arrangement with the Business Education Department, a typing refresher course was offered during the biennium. However, after the acquisition of additional electric typewriters, the State Fire Marshal required that additional electrical circuits be installed, causing considerable delay. The work is now nearing completion and classes will be resumed in fall 1970.

OFFICE PRACTICES—Although this program was discontinued two years ago, much of the content of the course has been incorporated into an *Office Practices Manual* soon to be published. The manual covers basic office techniques and is designed primarily as a reference manual for inexperienced office workers. Every office will receive a copy.

LABORATORY ANIMAL CARE—A basic course is offered every spring and an advanced course every fall to new laboratory animal technicians, who are all required to attend both courses during their probationary period.

MEDICAL TERMINOLOGY—This programmed course is usually presented three times annually to medical secretaries and technicians. Enrollment during the biennium was 133, compared to 168 during the preceding biennium.

SUPERVISION—Supervision workshops were attended by 69 employees during 1969-1970, after being suspended a year because of a shortage of staff. A trainer should be working full-time in this area.

SHORT COURSES—Short courses on postal regulations, summer session budget preparation, preparation of annual budget request, revised paid leave rules, and telephone-receptionist techniques were attended by a total of 979 employees during the biennium.

Departmental Training Programs—The Training Division helps departments organize training programs tailored to their needs. This may involve a full-scale training program such as one being planned for the Central Duplicating Department, preparation of a work methods manual such as the one recently published for chemistry laboratories, or development of an orientation program such as the one soon to be launched for the University Libraries. Frequently it involves sessions requested by departments for employees in specific subject matter areas.

Individual Development Programs

REGENTS' SCHOLARSHIP PROGRAM—Civil Service employees were awarded 1,984 Regents' Scholarships during the biennium. Of this number, 1,200 were for day school courses and 784 for evening school. The Regents' Scholarship program remains a popular fringe benefit. The Training Division provides guidance to employees planning self-improvement programs that will prepare them for advancement.

TRAINEE PROGRAMS—Similar to apprenticeship programs, trainee programs improve the knowledge and skills of employees who do not fully meet minimum job qualifications. Trainee programs may include regular University or vocational school courses, classes offered by the Training Division, or organized on-the-job training. The Training Division works with the personnel services representative, the equal employment coordinator, and hiring departments in setting up trainee programs.

SUPERVISORS' INFORMATION SERVICE—This is a library of periodicals in the fields of supervision, personnel, and management from which materials are circulated on a continuous basis to some 150 Civil Service supervisors and administrators. The Service also has a small library of books in this area that are available to the staff.

Employee and Labor Relations—Communication with unions and with the majority of individual employees continued on an effective basis during the biennium, but the problems caused by the automatic salary increase policies adopted by the Legislature effective July 1, 1969, placed great strain on employee relations. Although no major disruption of University work resulted, employees protesting the effects of these policies were away from their work for short periods to attend rallies and to present their grievances.

Weekly meetings were continued between representatives of Local 211 and the Department of Civil Service Personnel to solve problems before they became major. Local 211 represented the largest number of employees in any single union group.

A series of grievances arose in the Department of Police. Many minor prob-

lems were resolved and a major change in the police retirement plan and salary increase system were agreed upon in 1969-1970.

The International Brotherhood of Electrical Workers petitioned for the establishment of a bargaining unit for radio and television broadcast technicians and broadcast technician supervisors in 1968-1969. The unit was defined by the State Director of Mediation Services, and an election was held in which the employees voted to have the IBEW represent them. The IBEW requested that a separate "escalator" salary increase system be developed for these classes or that they be listed in Civil Service Rule 5.12 as classes exempt from Civil Service governed by an area master contract. These requests were rejected by the Department of Civil Service Personnel, and upon appeal were successively denied by the Civil Service Committee and the Board of Regents.

The Minnesota Nurses Association continued to press its case of the previous biennium concerning salary range and movement of nurses into that range. Agreement was reached during 1968-1969 both on the salary range and on a method of redistributing employees within the range and was placed in effect retroactive to July 1, 1968. During the extended negotiations, the Nurses Association picketed Morrill Hall for approximately a week and prevailed upon a national nursing journal to cancel help-wanted advertising placed by the University. The Minnesota Nurses Association carried on no further bargaining activity during the biennium.

Toward the end of the biennium a group of employees who had supported a student "strike" protesting the invasion of Cambodia by American troops turned their efforts toward organizing an employee union. They announced affiliation with the American Federation of State, County, and Municipal Employees, AFL-CIO, and engaged in intensive organizing activities. AFSCME provided a professional organizer. As the biennium ended, it was impossible to judge the strength of the effort.

Civil Service Committee—The following staff members served on the Civil Service Committee during the biennium: Robert K. Anderson, associate dean, College of Veterinary Medicine; Richard Bond, professor, School of Public Health; C. L. Carlson, director, University Services; Thomas Mahoney, professor, Industrial Relations Center (chairman); and Morris Nicholson, professor, School of Mineral and Metallurgical Engineering.

The Committee held 25 meetings during the biennium and considered 253 agenda items. Its actions resulted in recommendations to the Board of Regents to establish 71 new work classifications, abolish 61 old work classifications, change class titles or numbers for 47 work classifications, and change salary range assignments for 59 work classifications, in addition to reassigning all classes to new ranges in the salary plan adopted July 1, 1969.

During the biennium, the Committee heard one appeal concerning position classification (reclassification denied, one-step increase granted); four appeals of salary range assignments (one denied, one granted, one tabled, one pending); one appeal of suspension (reduced from five days to one day); and one appeal regarding union prevailing rate (denied).

The Committee studied changes in vacation and sick leave policies adopted by the state effective July 1, 1968, and decided on comparable changes that might be recommended for University Civil Service. Tentative recommendations were distributed to employees, supervisors, and administrators in December 1969 with a request for written comments, and a public hearing was held on the proposals. As a result of many comments protesting the parts of the proposals that would have resulted in decreased vacation and sick leave benefits, the Committee modified the proposals, recommending that the majority of them be placed in effect July 1, 1969, but with some retroactive to July 1, 1968. The most important policy change was the liberalization of the vacation accumulation schedule based on length of service.

During the biennium, the Civil Service Committee became increasingly concerned about the relationships between Civil Service and academic personnel administration and about the place of personnel administration in the top administrative organization of the University. Toward the end of the biennium, partially at the urging of the Committee, the vice presidents employed a consultant to study these questions. To save the time of the Committee for con-

sultation on the study, the Board of Regents approved an interim interpretation of Civil Service Rules 4.44 and 5.21 suspending the Committee's responsibility for review of and recommendations concerning salaries and classes. The vice president for planning and operations, upon recommendation from the director of Civil Service Personnel, was given authority to forward such recommendations to the President and Board of Regents for approval. The Civil Service Committee also informed the President that it would make no further recommendations for changes in the Civil Service Rules until the questions it was raising concerning overall personnel policy and organization were resolved. As the biennium ended, the work of the Committee was confined to hearing grievance appeals. Subsequent to the suspension of the Committee's other responsibilities, the director of Civil Service Personnel and the vice president for planning and operations recommended to the Board of Regents establishment of eight new work classifications, abolishment of two old work classifications, change of class titles for four work classifications, and change of salary range assignments for seven work classifications.

Student Employment—In the Student Employment Service there was a slight increase in the number of job vacancies and placements during the biennium but a slight decrease in the number of applicants. Eleven new promotional flyers designed by the Editorial Division, personal contacts, and public service announcements on radio and television continued to provide a good supply of part-time jobs for students. During the last six months of the biennium, a rapid change in the economy caused a decrease in the number of off-campus jobs for spring and early summer. However, while other agencies and schools seemed to be suffering a 50 to 60 percent drop in available part-time jobs, the Student Employment Service's supply of off-campus jobs decreased by only about 14 percent.

A significant increase in on-campus vacancies and placements occurred during the second year of the biennium. This may be attributed to additional communication with departments, including a memo from President Moos calling attention to the need for student jobs and announcements in the *Official Daily Bulletin*. The Department of Civil Service Personnel also reviewed personnel requisitions to identify jobs that it could encourage departments to fill with students.

During the biennium as a whole, the overall increase of available jobs and the decrease in the number of applicants created a high proportion of student placements. Statistics for 1966-1968 and 1968-1970 are as follows:

	Applicants	Vacancies	On-Campus Placements	Off-Campus Placements	Total Placements
1966-1968	28,399	35,827	20,720	8,087	28,807
1968-1970	27,850	36,039	20,839	8,374	29,213

New methods of acquiring summer job listings for students were set up and existing ones were improved. The Student Employment Service communicated actively with the Minnesota Highway Department as well as other state, county, and local government agencies and encouraged them to list student job opportunities with the University or with the local offices of the Minnesota Department of Manpower Services.

A summer camp staff recruiting-interviewing day was established with the cooperation of the American Camping Association. Camp directors from public and private camps were invited to recruit and interview students on campus. In 1969, 702 students talked with 42 camp directors; in 1970, 960 students talked with 52 camp directors. Approximately 350 jobs were available each summer.

A similar staff recruiting-interviewing day for the Twin City and Suburban Public Recreation and Park Association was initiated in February 1970. This event was aimed at recruiting staff for park, playground, and swimming and water safety work. Twenty representatives were present and they talked with 790 students about approximately 400 jobs.

All students who need or want work can learn about on- or off-campus jobs through the Student Employment Service. The Service uses a variety of

methods to inform students about jobs, including notices in the *Official Daily Bulletin*, news articles and ads in the *Minnesota Daily*, help-wanted ads, handbills, regular announcements on WMMR, and telephone calls and postcards to individual students.

During the biennium the Student Employment Service and the coordinator of the Work-Study Program placed 1,352 eligible students in jobs made available through this federally funded program. The program is for students from low income families and provides 80 percent of the wages for up to 15 hours of work per week for each student.

The University's Reserved Work Program continued to operate, although the number of students placed was affected by the federal Work-Study Program and the availability of scholarship, loan, and family support funds. The Reserved Work Program encourages enrollment of high-ability freshmen by assuring them 15 hours of work per week. All students who apply for scholarships are sent information regarding this Program. During the biennium, 158 high-ability freshmen were placed in Reserved Work Program jobs, compared to 144 placed during the 1966-1968 biennium.

The policy instituted in the 1966-1968 biennium allowing new students who have been accepted for admission to use the facilities of the Student Employment Service appears to be working effectively. A considerable number of such students are now able to obtain part-time jobs before becoming involved with academic work.

On-campus earnings for persons classified as students rose to \$16,822,961 in 1968-1969 and \$19,727,451 in 1969-1970. It is estimated that approximately 50 percent accrues to students employed under Civil Service classifications and undergraduate teaching and research assistantships and the balance to graduate students in academic and other administrative classifications.

Affirmative Action—In fall 1968 the Civil Service Committee published the following statement of Policy on Equal Employment Opportunity:

The University Civil Service shares the commitment of the University as a whole to devoting a significant portion of its resources to improving opportunities for self-fulfillment for members of disadvantaged groups in the University community. The University Civil Service policy commitment is to take affirmative action to hire and promote disadvantaged persons wherever there is a reasonable possibility of competent performance. This policy shall be carried out through redesign of jobs, applicant recruitment methods, employee selection techniques, counseling and training approaches, and on-the-job supervisory guidance that will result in increased employment and promotional opportunity for members of disadvantaged groups in University Civil Service. Appointing authorities shall cooperate with the Department of Civil Service Personnel in implementing this policy and these programs by assuming risks that assure opportunity to members of disadvantaged groups in initial appointment, training and promotion. The University Civil Service Committee holds that this affirmative action policy and the programs that relate to it are necessary in order to effectively implement the policies of "fair and equal opportunity . . . on the basis of merit and fitness" and of "non-discrimination" already expressed in the University of Minnesota Civil Service Rules. It is recognized that additional resources are required if substantial progress is to be made.

The Board of Regents subsequently passed a resolution on affirmative action for the entire University and endorsed the Civil Service Committee's policy statement.

In December 1968, a full-time person was hired in the Department of Civil Service Personnel to coordinate efforts to locate, hire, and train disadvantaged persons who had been denied the opportunity to compete effectively for meaningful jobs. Funds were provided to assist disadvantaged persons while they were developing marketable skills, attitudes, and work habits. Nine persons were hired under this program of intensive training. Departments were reimbursed for the time a trainee spent off the job in training activities and tuition and books were paid for when the necessary training was not available through the University.

The Department also actively recruited persons who by previous standards would not be considered for employment. The recruiter worked with community agencies in ghetto neighborhoods to obtain applicants, and the personnel services representatives worked closely with departmental supervisors to assist disadvantaged people in adjusting to a work environment. Approximately 40 persons were hired under this program. The retention rate for these employees was poor, but much was learned during the biennium and it is hoped that the success ratio will improve.

Unemployment Compensation—During the calendar years 1968 and 1969, 421 new claims for unemployment compensation were filed by terminated Civil Service employees, compared with 387 for the previous two years. The University's total cost for unemployment compensation rose from \$94,799.88 in 1966-1968 to \$100,651.70 in 1968-1970, an increase of \$5,851.82 or 6.2 percent. A total of 507 individual claims were paid during the last biennium, compared with 526 during the previous biennium. The University protested 146 claims, resulting in disqualification of 91 claimants for five to eight weeks (one for twelve weeks) or until they had worked again for at least six weeks. Four disqualifications were appealed by employees, three of which were decided in the University's favor by the Appeal Tribunal.

Of the 507 claims paid, approximately 27 percent were claims for second to eleventh benefit years. On the last billing of the biennium, benefits were paid to four employees who were collecting benefits for their ninth, tenth, and eleventh years. This happens in the cases of six-month appointments at the agricultural experiment stations where there are no similar jobs available for the remaining six months of each year and of nine-month appointments in jobs from which employees are laid off each summer. Also, employees collect benefits each year while residence halls are closed, skilled tradesmen who are periodically laid off and rehired file a new claim for benefits each year, and painters in the Plant Services Department collect a large amount in benefits on each billing.

In addition to an increase in the number of claims filed, revisions in the unemployment compensation law have made the clerical work involved in processing the claims exceedingly time-consuming.

OFFICE OF THE FIELD AUDITOR

Donald Fahey, *Field Auditor*

During the 1968-1970 biennium, the Office of the Field Auditor continued its responsibility for reviewing the accounting, financial, and other operating procedures of University departments. The Office is concerned with any phase of business activity in which a member of management might be assisted in the satisfactory operation of his department. Changes in procedures are constantly being made to strengthen the internal control of University funds.

The Office worked closely during the biennium with the University attorney and the state attorney general, who was acting on behalf of various public entities including the University, in several antitrust suits. The Office also worked with the Business Office and the Investment Office in establishing procedures and controls for the University's new investment policy and with representatives of the State Public Examiner's Office during their visits to the campus. Procedures and controls were reviewed with the latter when necessary, and their suggestions for strengthening of controls were implemented.

PLANT SERVICES

Roy V. Lund, *Director*

PLANNING

The planning process is a continuous one and criteria in all aspects of University planning are continually reviewed and revised.

Minneapolis East Bank Health Sciences—The overall planning of the Health Sciences complex is directed by the Architects Collaborative of Cambridge, Mass., which works with three local offices: The Cerny Associates, Inc.; Setter, Leach, Lindstrom, Inc.; and Hammel, Green & Abrahamson, Inc. Planning has proceeded to the point at which contracts for the first stage of construction can be awarded on receipt of federal funding through the approved National Institutes of Health grant.

Minneapolis West Bank—The plan for development of the West Bank currently is being updated by the planners Hodne-Stageberg of Minneapolis. Initial

assumptions are undergoing reevaluation in light of University developments and in relation to emerging plans for the surrounding community.

St. Paul—Overall policy planning for the Twin Cities campus presumes that student attendance at St. Paul will increase from the current level of 3,328 to 10,000-12,000 or more. John Andrews and Associates of Toronto are in charge of this study, which is now in the programmatic stage. The study has already been valuable in establishing sites for the Classroom-Office Building and the Animal Science complex.

Duluth—The UMD campus was initially programmed for a plateau attendance of 4,200 students; current undergraduate attendance is 5,429. The Regents anticipate further expansion to perhaps three times the level originally planned. The UMD faculty has been actively involved in preparation of the Long-Range Academic Program to the Year 1980. With the decision to establish medical school facilities at UMD, wholly new planning considerations were introduced. The Planning Office is now reviewing and updating the UMD overall plan.

Morris—Conversion of the West Central School of Agriculture to a four-year liberal arts branch of the University involved additional facilities, the scope of which could not be immediately defined. Land uses and building interrelationships were explored for student attendance levels varying from 1,000 to 8,000, perhaps in a cluster complex. Current attendance at UMM is 1,716. Planners Charles Wood and Roger Martin, Minneapolis, have been involved in overall planning studies. Currently the Planning Office and the UMM Planning Committee are studying attendance levels in relation to alternative curricular and land-use configurations.

Crookston—Establishment of the Technical College resulted in increased enrollment and varying facilities requirements. Current student attendance at Crookston is 418. The Planning Office will work with the faculty and staff in continuing studies of curriculum and physical requirements for development of an updated master plan.

Waseca—In conjunction with the architectural planning for the Classroom Wing, the Horticulture Complex, and the Service Building, Adkins-Jackels of St. Paul were authorized to make exploratory studies for anticipated future developments. The faculty and staff, in cooperation with the Planning Office, are continuing with curricular studies that will form the basis for further long-range planning.

Planning studies are also under way in the areas of lighting and graphics, pollution control along the river, traffic and circulation, security control, and implementation of the Parking and Circulation Committee report recommendations for express buses and additional ramps and of the Housing and Related Space Committee report.

LAND

During the biennium, additions were made to the Twin Cities campus, East Bank, as follows:

In Blocks 6, 7, 8, 9 and 11 of Meeker Island Land and Power Company's Addition, bounded by Oak, Fulton and Huron Streets S.E., by Dartmouth Avenue S.E. and by East River Road, 6 parcels	25,961 sq. ft.
In Blocks 7, 9, 10 and 12 of Baker's Addition to Saint Anthony, bounded by Washington Avenue S.E. and by Oak, Delaware and Erie Streets S.E., 9 parcels	59,350 sq. ft.
In Barney's Sub-Division of Block 30, St. Anthony City Addition, bounded by Washington Avenue S.E. and by Union, Delaware and Harvard Streets S.E., Lot 11, one parcel	4,950 sq. ft.

For the development of the West Bank, the following parcels were acquired:

In Blocks 177, 178, 180, 181 and 184, Town of Minneapolis Addition, bounded by Cedar, Riverside and 22nd Avenues S. and by 3rd and 6th Streets S., 18 parcels	76,013 sq. ft.
In Blocks 3, 4, 7 and 8, Hancock and Rice's Addition, bounded by Cedar, 15th and Washington Avenues S. and by 1st Street S., 6 parcels	24,210 sq. ft.
Vacation of Washington Avenue S. from 20th to 21st Avenues S., and vacation of 21st Avenue S. from Washington Avenue S. to the south line of 2nd Street S.	51,080 sq. ft.

Vacation of Washington Avenue S. from 21st Avenue S. easterly to the Public Levee access road as now platted east of Block 9, Hancock and Rice's Addition and east of Block 165, Town of Minneapolis Addition	17,200 sq. ft.
Vacation of the alley in Atwater's Third Addition between Locust Street S. and West River Road	1,920 sq. ft.
Vacation of 20th Avenue S. between the south line of 3rd Street S. and the north line of 4th Street S.	26,400 sq. ft.

During the biennium, the Administrative Services Building at 2610 University Avenue, St. Paul, was acquired:

In Baker's Addition to the City of Saint Paul, Lots 1, 2, 3, 4 and 24 in Block 2, and Lots 15 through 23 inclusive, in Block 3	114,351 sq. ft.
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The following off-campus parcel was sold:

At 3338 University Avenue S.E., parts of Lots 3, 4 and 5, Block 5, Prospect Park First Division, City of Minneapolis	(deduction) 42,900 sq. ft.
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The Regents accepted the gift of Banfill Island in the Mississippi River (east of Lyndale at 69th Avenue North in Brooklyn Park) for use in ecology research:

Government Lot 2, Section 4, T30N, R24W, 4th P.M., Anoka County	27.1 acres
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Additional land was acquired at the Minnesota Landscape Arboretum near Excelsior:

Those parts of the SW $\frac{1}{4}$ of the SW $\frac{1}{4}$ and of Government Lot 5, Section 8, T116N, R23W, 5th P.M., lying south of State Trunk Highway 5, Carver County	51.0 acres
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Additions were made to the University of Minnesota, Duluth campus as follows:

In Motor Line Park Division of Duluth (north of St. Marie Street and west of Oakland Avenue), Lot 4 in Block 7; and, Lots 5, 6, 7 and 8 in Block 3, and Lot 9 in Block 10. Two transactions	18,050 sq. ft.
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In Oakland Park Addition to the City of Duluth (north of St. Marie Street and east of Montrose Street), Lots 11 and 12 in Block 26; and, Lots 10 through 12 in Block 30. Two transactions	14,102 sq. ft.
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In Superior View Addition to Duluth (east of Brainerd Avenue between College and Niagara Streets), Lots 5, 6, 8, 9 and 11 in Block 2, and Lots 2, 4, 13, 15, 17 through 22, 24, 26, 27 and 28 in Block 9; Lot 14 in Block 2; and, Lot 17 in Block 9. Three transactions	99,600 sq. ft.
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In Superior View Addition to Duluth, Second Division (east of Brainerd Avenue and north of Niagara Street), Lots 29 and 31 in Block 11; Lots 41, 43, 45 and 47 in Block 11; Lots 10, 12, 14 and 16 in Block 12; Lots B, 2, 4 and 6 in Block 19; and, Lots 7, 9, 11 and 13 in Block 20. Five transactions	55,961 sq. ft.
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Also, in Superior View Addition to Duluth, Second Division, Lots 8, 10, 12 and 14 in Block 19, by State of Minnesota deed conveying title to tax forfeited land	12,435 sq. ft.
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In Motor Line Division of Duluth, Lots 1 through 5, an un-divided two-thirds of Lots 6 and 7, and Lots 8 through 28, all in Block 11 (north of Elizabeth Street between Waverly and Woodland Avenues), by State of Minnesota deed conveying title to tax forfeited land	84,375 sq. ft.
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Additions were made to the Cedar Creek Natural History Area as follows:

That part of Government Lot 3 lying southwesterly of County Road 76 in Section 25, T34N, R23W, 4th P.M., Anoka County	4 acres
The NW $\frac{1}{4}$ of the SW $\frac{1}{4}$ and the westerly 873 ft. of the northerly 498.97 ft. of the SW $\frac{1}{4}$ of the SW $\frac{1}{4}$, Section 26, T34N, R23W, 4th P.M., Anoka County ..	50 acres
Parts of the SE $\frac{1}{4}$ of Section 27, T34N, R23W, 4th P.M., Anoka County ..	109.2 acres
The E $\frac{1}{2}$ of the SW $\frac{1}{4}$ of Section 35, T34N, R23W, 4th P.M., Anoka County ..	80 acres

Offers to purchase approximately 5.5 acres of University lands at Morris were publicly opened December 4, 1969. Offers for the following two parcels were accepted:

Parcel 7 (1.0 acres) and Parcel 8 (2.1 acres) lying west of the curve joining Columbia Avenue with University Avenue in the City of Morris, Stevens County, Minnesota	(deduction) 3.1 acres
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A parcel of land in Greece was purchased as a site for the Messenia Archaeological Expedition headquarters building:

Approximately one acre of land west of Kalamata, Messenia Province, Greece ..	1 acre
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CONSTRUCTION

Minneapolis—O. Meredith Wilson Library was completed in fall 1968. The Library, containing 348,807 usable square feet, includes central cataloging for the entire University, periodical and newspaper rooms, reference areas, stacks, photocopying facilities, study areas, and rental typing rooms. The air-conditioned building is of structural steel above concrete caissons and consists of a basement, a plaza level, and three floors. Part of the new West Bank complex, it is connected to Anderson and Blegen Halls by tunnels and by an exterior plaza. The total cost of the structure was \$10,142,000, with funds provided by a state appropriation and the Higher Education Facilities Act (HEFA).

St. Paul—No construction was completed during the biennium.

Duluth—A Classroom Building constructed as an addition to the Humanities Building was completed by June 1970. It contains 29,017 usable square feet for studios, offices, storage areas, and classrooms. The building is of structural steel with concrete on corrugum slabs, masonry walls faced with brick. Funding was provided by a state appropriation and HEFA.

The Lecture Halls Addition to the Life Sciences Building, completed in spring 1970, provides 7,620 usable square feet for two lecture auditoriums. The structure is partially below grade so that the roof, which is used as an outdoor courtyard, is at ground level at one elevation and the front entrance is also at ground level on the opposite side. Funds for the project, totaling \$384,501, were provided by a state appropriation and HEFA.

The Rock Hill Park Recreation area was developed for use as a ski area and landscaped with hiking trails, including planting of typical native plants. There is also an overlook point and a warming house for the use of skiers. The cost of developing this area was \$112,982, provided by the Bureau of Outdoor Development and the General Maintenance fund.

Morris—The new Physical Education Building was essentially completed in spring 1970. It is to be used for various physical education activities and includes playing courts, classrooms, offices, and storage areas. The construction is bearing walls and steel framing. Funds totaling \$1,810,934 were provided by a state appropriation and HEFA.

The first phase of the heating plant construction was completed in spring 1970. The building, of structural steel and concrete block with brick veneer, houses two 25,000-pound-per-hour boilers and related equipment. The total cost of the buildings, boilers, and related equipment was approximately \$519,839, provided by a state appropriation.

Crookston—The Agricultural Research Building, constructed as an addition to the Animal Products Building, consists of 6,852 usable square feet on three floors, used for offices, storerooms, and classrooms. Construction is concrete columns, beams, and framing, with a wood truss and wood-shingled roof; walls are of concrete and block faced with brick. Funding was obtained from a state appropriation.

REHABILITATION

Minneapolis—The rehabilitation of old Sanford Hall is continuing. Phase III, Stage I, completed spring 1970, included new closets in student rooms, additional toilet rooms, new fin tube radiation, removal of an overhanging soffit in student rooms, and additional electrical outlets and fixtures. The renovation is being carried out in several stages to allow occupancy of the building during remodeling. Total cost of the completed work is \$237,550, with funds provided by University Services.

By the beginning of 1970 a new emergency generator system had been installed in University Hospitals to provide electrical power in case of outside power failure. Funding was provided by a special state appropriation.

Part of the existing roofhouse on Jackson Hall was removed and replaced with a larger roofhouse encompassing animal rooms and work rooms. A deionized water system and air-conditioning were added. Total cost of the new roofhouse was \$525,459, with funding provided by a state appropriation.

The general construction work on Phase III Primary Electric Distribution and Hospital Primary Electric System is complete, including all ductwork, man-holes, switching vaults, and transformer vaults. The electrical cable, switchgear, and transformer work has been contracted, with an anticipated completion date of May 1, 1971. This work includes two primary cables, numbers 15 and 16, to be installed from the Fourth Street University substation in existing duct and in new duct through the new switching station south of Jackson-Owre, extending to the new transformer vault south of the Hospitals. This project was funded by a 1969 legislative appropriation of \$350,000 for Phase III Primary Electric Distribution and \$150,000 for the Hospital Primary Electric System.

The air-conditioning system for the two hexagonal classrooms in Blegen Hall is now complete and in operation. Air-conditioning in the Business Administration building is complete but is undergoing a final air balance by the contractor. The system will be in operation shortly. The cost of this project was \$290,000, with funds provided by a 1969 legislative appropriation.

An area on the third floor of Blegen Hall originally used as a library was remodeled into five classrooms and a Student-Faculty Commons Room. A former library on the third floor of the Business Administration building was converted to office space for academic staff and study groups. The work included partitioning, new lighting, built-in shelving, and other modifications. The two projects were funded by a 1969 legislative appropriation of \$133,700.

St. Paul—The first phase of the renovation of Coffey Hall, completed in spring 1970, consisted of structural upgrading, added concrete block partitions, floor refinishing, new windows, elevators, and site improvements. Funding of \$1,730,506 was provided by a state appropriation.

The auditorium and two classrooms in Green Hall were upgraded through remodeling and installation of teaching aids. The cost of this work was \$48,000 and was part of the state appropriation for rehabilitation of teaching facilities.

Areas in the basement and on the first floor of Snyder Hall were completely remodeled. The remodeling included new laboratory furniture, hoods, mechanical and electrical services, and floor covering. The work is approximately 80 percent complete and was funded by a 1969 legislative appropriation of \$149,500.

Phase I of the primary electrical system conversion from 4160 to 13.8 KV has been contracted. This includes installation of new switchgear at the University substation extending primary feeders east to the biological sciences and north to new buildings that have 13.8 KV equipment installed. The project was funded by a 1969 legislative appropriation of \$210,000.

The installation of a new gas/coal-fired boiler in the St. Paul Heating Plant was completed in February 1970. Tests for final acceptance for gas and coal were made in December. Funds for the 70,000 lb/hour boiler unit and the building, utility, and auxiliary changes were provided by a 1967 legislative appropriation of \$730,000.

Duluth—The contract for the first phase of the electrical distribution system on the Duluth campus was awarded. Approximately 75 percent of the installation is complete and the project should be completed in January 1971. The project includes installation of substation, primary switchgear, 13.8 KV primary feeder cable from the substation through the campus to the Library Building, rerouting of 4 KV feeders from the Life Science Building to the Library Building, and vault revisions in the Social Science Building, Life Science Building, and Kirby Center. The project is funded by a \$250,000 legislative appropriation.

The two original boilers in the heating plant were converted from coal standby to oil standby to comply with Minnesota Pollution Control Agency emission standards. One unit was tested for acceptance the first part of December; the second unit will be tested in January 1971. This completes the modification of the plant covered in the 1967 legislative appropriation of \$540,000.

Morris—The first phase of the electrical distribution system, completed in March 1970, consisted of construction of vaults and runs for high voltage system at a total cost of \$229,500. Funds were provided by a state appropriation.

UNIVERSITY SERVICES

C. L. Carlson, *Director*

At the close of the biennium, announcement was made that University Services would be renamed Support Services and Operations and the position of director changed to assistant vice president, reporting to the vice president for finance, planning, and operations, with added areas of responsibility.

A position of director of Transportation Services was added to the University Services central administrative office to complete the organizational structure. All divisions now report through a director responsible for coordination of operations in relation to needs of the total University community. University Services has instituted a program of management by objectives to promote understanding of individual responsibilities and objectives in the management of the divisions. Service divisions are listed in the accompanying table of comparative earnings.

The aim of University Services operations continues to be the provision of services essential for students, staff, and University departments at the lowest cost consistent with quality needed. It is hoped that the computer systems study conducted by consultants for the University will result in increased management and accounting data for continual improvement of operations.

University Housing—In addition to providing housing and meals, the residence program seeks to support the academic purposes of the University. Residence halls are designed, equipped, and managed as a living-learning opportunity for single students. Married student apartment projects provide educational and recreational opportunities for married students. Faculty and staff housing is intended to attract and retain qualified staff and faculty through provision of adequate and convenient housing.

Capacity in single student facilities on the St. Paul campus was reduced by the razing of Meredith, Brewster, and Dexter Halls because of their deteriorating condition. The halls had been used almost to full capacity. In Minneapolis, the rehabilitation of the original Sanford building reduced occupancy from 520 to 449 during 1969-1970. The opening of Middlebrook Hall for men and women students in 1969-1970 brought Twin Cities campus capacity for women to 2,155 and for men to 2,278.

Increasing concern of administrators and students with escalating operating and replacement costs, as well as changing needs, resulted in the organization and utilization of committees of students and administrative staff in the review of various phases of operation. Separate committees served in the areas of living arrangements, meals, maintenance, contracts, information booklets, rates, educational programming, and coordination. While an intensive study of student housing needs was being completed by the Housing and Related Space Committee of the University, residence hall committees worked closely with residence hall and student affairs administration in the restructuring of administrative organization.

Student leaders have taken a mature view of hall operations and have served as valuable liaison with residents. Consultation with students resulted in rate increases to help offset increased costs in each year of the biennium. Planning for food service yielded several worthwhile experiments. Pioneer and Middlebrook Halls were chosen as the test units for unlimited food programs; tests were still being evaluated at the close of the biennium. Beginning with the 1969-1970 year, a meal option for any two of the three meals Monday through Friday and brunch and dinner on weekends was offered at reduced contract price. Following this experiment, the decision was reached to offer a contract choice of full meals seven days a week or full meals Monday through Friday in 1970-1971.

As a result of the housing review, rehabilitation programs for housing facilities are being accelerated. Pioneer Hall is being remodeled during occupancy to bring the building to present codes and standards of acceptance. Updating of all residence halls was continued, with electrical service improvements, window replacements, bathroom remodeling, acoustical treatment in rooms, carpeting in corridors and lounges, bookshelf installations in rooms, furniture renewal, and laundry, vending, study, and lounge area improvements. In 1969 the

streets separating the halls known as the Complex were eliminated, and sod and sidewalks were installed to create a "Super Block."

It has been the policy of the University to provide adequate housing for married student families at cost commensurate with efficient operation and high standards of maintenance. Rate discussions with students led to a student proposal for creation of a cooperative. With the close of the biennium, management of Commonwealth Terrace and Thatcher Hall is being assumed by the Commonwealth Terrace Cooperative Association, Inc. The concern of housing administration now will be to provide the support services necessary, as specified in the Management Agreement, to assure the continuance of efficient operation by the Co-op.

The waiting period for rental of Pillsbury Court faculty and staff apartments consistently has been a year or more. The University Grove faculty residential area development is near completion, with the curbing and boulevard program finished on Hoyt and street lights functioning in the newest area. Homes occasionally are offered for resale. The Faculty Women's Club representative for staff housing moved to the off-campus housing office for integration with non-University housing operations.

The Campus Rentals operation continued to serve as a source of economical housing for students, staff, and faculty, and at the same time recovered some of the capital expended in purchase of property needed for University expansion.

Food Services—Meeting the problems of cost increases and the labor shortage provided challenge during the biennium. The St. Paul Dining Center hired more student employees, and fountain service areas in Coffman Food Service began using disposable dishware, reducing labor, breakage, and silver and dish losses. Payroll economies were accomplished by closing the Coffman cafeteria in periods of low volume and offering service in smaller units such as the Gopherette on Saturdays and the Fountain Grille in the evening during the summer.

At the close of winter quarter 1970, the Coffman Union cafeteria and the Gopherette counter service were closed for extensive remodeling, scheduled for completion during the 1970-1971 school year. The renovation is designed for improved customer service, reduced staffing requirements, and pleasant environment.

The Blegen Hall food counter was opened on the West Bank to supplement the vending service. Planning was intensified for a second food counter and dining area to be opened in Blegen Hall in fall 1970 and for food service in the proposed West Bank Union.

Vending Services installed additional food-dispensing equipment to meet needs at various locations on the campus. Plans for development of an integrated operating center were considered.

Food Stores supplied items requested by consumer departments within the limits of economical quantity purchasing, storage, and handling. The department served as liaison between producer and user, advising on seasonal buying, new products, changing trends, and prices, and provided inspection of merchandise for quality and weight.

The Milk and Cream Department gave continuing consideration to the need to upgrade plant equipment and processes to keep pace with advances in technology and with demand for products.

Auxiliary Services to University Departments—Audiovisual Resources continued to assist academic and administrative staff in the development of programs and materials. To the extent possible, physical location changes were made to improve efficiency and reduce operating costs. A new portrait studio, a preview and conference room, film editing space, and a film vault were developed in the Shops Building. The artist service and materials lab were combined to provide art work and visual display from one source.

The booking section provided methods consultation, films, equipment, and projectionists for learning and teaching needs. The advisory section aided new self-instruction systems and advised existing programs. An information center was maintained for materials technology and methodology.

The engineering section provided the technical back-up for the booking operation, serving University departments with recordings, repair and maintenance of audiovisual and other electronic equipment, consultation, and technical assistance

in the purchase and installation of communication systems. Installations during the biennium included a Wilson Library listening center, a Middlebrook Hall sound system and master antenna TV, an otolaryngology CCTV system, Masonic Hospital videotaping facilities, and Masonic Hospital-to-Mayo CCTV.

The microfilm operation has been adding equipment with increased capability with the aim of providing a complete micrographic service including filming, indexing, storage, and retrieval. Major areas of service included library cards, clinical psychology records, and student transcripts. Objectives were established for implementation of a program of research and design of micrographic media for use in instruction and research and for development of the program of computer-output microfilm with users of computer-generated data.

Photography operations were combined with motion picture production for more efficient utilization of the talents of the photographers. Completed color films included "Introduction to Bacteriological Culture Techniques," "The Painful Shoulder," and "Pages from Labor History." A series of 20 lecture films on "Mass Transport and Transfer Functions of the Blood" was produced. Completed color television films included "Minnesota Concert Band" and "Blood Flow in the Dog Brain." A filmstrip on "Yearbook Planning Guidelines" was made for journalism, and a series of on-location interview films on "Civil Disorders" was done for a social work course.

The art and instructional materials section added a significant amount of equipment through an award from the Instructional Equipment Grants program. An Audiovisual Newsletter announced the services of this division, whose aim is to provide a comprehensive art service from consultation and design to final visual products such as classroom graphics, displays, or signs. The University's State Fair exhibit on ecology was requested for use on many occasions, and teaching kits on drugs and their use, designed and produced in the department, received nationwide recognition. Consideration was given to future installation of an art and instructional materials service in a St. Paul Audiovisual Resources satellite in Coffey Hall.

Color processing service was added in November 1968. Four super 8mm motion cameras and one 35mm camera were added to the rental pool. An automatic black and white paper processor is needed to meet the volume of medium quality photo printing. Other equipment needs include a small format copy camera to replace old equipment for slides and filmstrips and processing equipment to accommodate larger volume and provide better quality control. A centralized department location is a serious need in order to meet photographic requirements of the University in the most efficient, economical, and rapid manner. A research and development program within the photographic service areas also is becoming a necessity. A photographic archive, comprised of negative file and visual file, should be readily accessible to the University community to permit fast retrieval of photographic subjects. At present only a negative file is available. A modern microfilm recording and retrieval technique is recommended.

A visual products sales unit was established to coordinate sales activities and, in cooperation with the University-Sponsored Educational Materials Committee and the Department of Audio-Visual Extension, to support faculty interest in developing instructional materials.

Photographic production technology is changing so rapidly that a formal training program for photographic staff is urgently needed. Equipment replacements and additions are needed as well to keep pace with technological developments and to accommodate increasing volume, improve timeliness, expand quality control, and increase services provided.

The Printing and Graphic Arts division provided services in printing, duplicating, graphic design, book binding, and mailing. The Printing Department is not intended to produce all work but has given direction to the production of all work, which includes advisory services, preparation or review of specifications, recommendation of qualified bidders, and review of commercial bids.

During the biennium, seminars were begun for employee groups such as secretarial staff in veterinary medicine and personnel in educational psychology to acquaint them with printing and duplicating facilities, to review the relationship between duplicating and printing, and to discuss costs, time elements, and service. The apparent success of the seminars in explaining services has given encouragement to expansion of the program.

Planning in the biennium was largely related to future printing, mailing, bindery, and graphic design operations in the building currently under construction. The aim is a modern, efficient plant with increased production capacity and reduced cost. Consideration was given to space utilization and to equipment needs and placement. Methods were discussed with other printers in the area.

Some of the hot metal machines were phased out and photocomposition was introduced. With the move to the new building, extensive use of perforated tape and linofilm is planned for greater production and more flexibility in typesetting. A central editorial service for University departments was requested for partial support, to begin in January 1971. Estimating and consulting services were reviewed for improvement. Effort has been directed toward alleviating recruiting problems through an apprentice program and more mechanized equipment. A major equipment addition was a perfect binder, for improved appearance and more rapid application of wrap-around covers on stitched books.

In the development of a Management Information System, a data bank in a QWICK-QWERY system has been established utilizing the CDC 6600 at the University's research center. A simple program is written to query the data bank, and a reply is received within 24 hours. Aim is to gain information on plant operations to improve efficiency and reduce costs.

Objectives established for 1970-1971 include organization of foremen's cost meetings for information, review, and planning; improvement of wrapping methods; systematizing of reorder notices to permit efficient plant scheduling; and preparation of a printing information booklet and a type style book.

A cold-type section was set up in Central Duplicating to meet the need for inexpensive typesetting for short-run jobs. The quality of the composition is not equal to that of hot metal, but it is better than ordinary typewriter, utilizing a wide variety of type faces and sizes. The St. Paul Duplicating Department also converted to a cold-composition system. Central Duplicating provides composition and printing service on a scheduled or walk-in basis for duplicating jobs too small for Printing but too large for individual department ditto and mimeograph. The department secures services from overload commercial vendors when necessary to meet a special need.

Central Duplicating was enlarged by 2,000 square feet in its location in the basement of Johnston Hall. An overload duplicating center was planned for location in the Shops Building, to handle most of the larger and more complex long-run work that has created problems for short-run scheduling.

Coin-operated copiers have been installed at various locations on the campus for a period of experimentation.

In February 1969, Graphic Design was established as a separate section, to provide professional service in conceptual consultation and planning, and in creative design including format, keyline, art production, and selection of papers, inks, and typography. As funds have allowed, a photo file of general campus scenes has been accumulated to provide convenient, economical use of pictures without new photography. The department was given responsibility for design of the next college bulletin series and was funded to develop a new design for University letterheads and related materials.

New equipment to speed production for fast return service was acquired by the Bindery for the planned move to the new plant.

The Addressing and Mailing department, in addition to setting up and maintaining mailing lists, addressing, inserting, sealing, sorting, metering, and delivering to the Post Office, served as an information center on postal regulations. Service was expanded to provide for attaching of labels generated by any of the computer systems at the University. Computer-generated labels are practical because of the ease of sorting and manipulating mailing lists on computer equipment.

Office Machine Rentals lacked suitable space for establishment of a repair service. The department has been scheduled to move to the Shops Building for more space and greater accessibility. Activity of the department has been confined to providing University departments with general office machines for immediate delivery at nominal rental to meet peak load requirements. Long-term rentals have not been encouraged unless purchase of special equipment for rental is requested and the customer then is asked to commit to long-term use.

The Laundry continued planning for expansion and modernization of plant and equipment. Plans were changed, but have not yet been approved, from ex-

panding in the basement to expanding at ground level. A new dry cleaning system was installed and card-o-matic controls in the washroom and a drying tumbler were added. For the comfort of the employees, air curtain doors in the back dock area and a second set of window louvers were added for improved air circulation.

Other Services—To insure maximum utility at minimum cost, Scientific Apparatus Service aims to provide quality in design, construction, and repair of mechanical and electromechanical apparatus, according to customer requirements, on a reasonable delivery schedule. The department plans to establish a satellite facility for electronics and shop services on the St. Paul campus. An electronics technician was procured for the present shop location.

Plans for Glass Technology Services include relocation with additional equipment in the Chemistry Annex in 1970-1971 and establishment of a satellite on the St. Paul campus.

The intracampus bus facilitated use of the parking areas at the Fairgrounds and at 28th Avenue and Como S.E., relieving some of the traffic congestion within the campus. A 12-passenger bus service was established to transport University employees between offices in the Hubbard Building and Morrill Hall. A need for improved evening service Monday through Saturday between Minneapolis and St. Paul campuses still remains.

The long-range objective of Truck Service is a new garage with adequate space and equipment for more economical and efficient maintenance of the Twin Cities campus fleet. Educational programs, including the fleet supervisor conference and mechanics training courses, continued to increase and diversify. In the testing program, plans were made for experimentation with liquid petroleum gas. A vacuum switch for trucks was developed to prevent drivers from engaging the starter while the engine is operating, reducing repair work on starters. A retractable tarp mechanism for open van trucks was designed. Radiotelephones were installed in the service truck and two cars for communication between the vehicles and with the office. Used tires are now available for sale to other departments on a percentage-of-wear basis.

Transportation needs to increase the number of vehicles available to permit more rental requests to be filled. Long-term rentals on a yearly basis served departments that needed vehicles daily but preferred not to invest funds for purchase.

The Post Office made plans for a self-service postal unit on the West Bank and a stamp vending machine near the contract station in Coffman Union.

COMPARATIVE EARNINGS, UNIVERSITY SERVICES DEPARTMENTS

	1968-1969	1969-1970
Centennial Hall	\$ 780,048.44	\$ 824,436.65
Pioneer Hall	648,740.01	613,253.20
Territorial Hall	509,539.33	573,739.05
Frontier Hall	580,266.79	616,799.96
Comstock Hall	652,775.02	627,806.65
Sanford Hall	529,232.45	495,808.11
Middlebrook Hall	13,025.00	785,427.44
Bailey Hall	154,337.39	148,176.94
St. Paul Campus Dormitories	109,065.16	5,274.11
Commonwealth Terrace	383,358.14	408,528.64
Thatcher Hall	38,024.92	41,758.49
Pillsbury Court	74,969.75	74,095.68
University Grove Rentals	8,082.41	9,372.81
Nolte Center for Continuing Education (Residence) ...	16,088.45	15,909.48
Coffman Union Food Service	707,085.19	657,931.83
Shevlin Cafeteria	90,349.12	97,030.04
St. Paul Dining Center	393,057.67	286,672.25
St. Paul Student Center Snack Bar	127,555.29	122,823.73
Milk and Cream	335,725.96	339,160.38

COMPARATIVE EARNINGS, UNIVERSITY SERVICES DEPARTMENTS—Continued

	1968-1969	1969-1970
Food Stores	1,364,823.90	1,477,685.06
Special Events Services	153,735.73	204,078.61
Vending Service	1,031,184.78	1,180,958.20
Audiovisual Resources (Operations)	287,637.02	320,320.03
Audiovisual Resources (Production Services)	409,839.36	544,860.81
Printing Department	1,111,190.53	911,656.51
Bindery	116,316.10	129,719.98
Central Duplicating Service	392,371.68	461,796.08
Duplicating Services and Bulletins (St. Paul)	171,094.20	186,472.78
Addressing and Mailing Services	56,012.64	47,023.08
Laundry	594,452.14	628,407.47
Calculating Machine Rentals	43,763.96	40,155.29
Typewriter Rentals	22,593.65	20,437.79
Post Office and Campus Mail	999.96	1,001.11
Transportation	118,953.83	132,211.20
Lockers	4,720.42	4,887.15
Como Clinic Building	910.00	960.00
Barber and Beauty Shops	7,138.30	..
Men's Residence Hall Recreation Dens	4,263.96	3,805.09
Men's Residence Hall Laundry Dens	6,213.28	3,185.97
Comstock Hall Candy Counter	2,876.70	2,604.33
Sanford Hall Candy Counter	2,220.31	1,692.75
Middlebrook Hall Candy Counter .....	..	3,295.31
St. Paul Campus Residence Hall Candy Counters	1,150.48	666.08
Intracampus Bus	48,874.92	45,495.25
Scientific Apparatus Services	106,766.59	106,284.40
Glass Technology Services	43,772.17	51,692.51
Truck Service	75,416.76	98,783.45
TOTAL	\$12,330,619.86	\$13,354,139.73

*Divisions of Student Affairs*Paul H. Cashman, *Vice President*

The Regents established the Office of the Vice President for Student Affairs in April 1968 as part of central administrative reorganization and in recognition of the central importance of student affairs to the University. Paul H. Cashman, formerly assistant vice president for educational relationships and professor of speech and theatre arts, was appointed to the post. The Office assumed administrative responsibility for the Dean of Students Office, the Office of Admissions and Records, the Department of Minnesota Union, and the Health Service on the Twin Cities campus and comparable units, services, functions, and departments on the coordinate campuses.

As a member of the President's central staff, the vice president for student affairs has responsibilities relating to concerns of students and provides a communication channel for administrative responsiveness to students. While the biennium was a period of severe disruption and turbulence on many campuses, the University of Minnesota was able to stay open and to continue its educational mission with a minimum of stress, at the same time taking positive steps to develop new programs and bring about academic reforms and innovations to meet expressed concerns of students.

Personnel—Retirements, special assignments, and office reorientation made personnel changes necessary.

Edmund G. Williamson, who had been dean of students since 1941, retired on June 30, 1969. Dean Williamson initiated student participation in University governance through all-University committee membership and stressed purposeful student government. A dominant figure, nationally and internationally, in the student personnel field, he built an outstanding personnel program with student educational growth and development as the central core.

Robert Edward Summers, dean of admissions and records since 1946, retired on June 30, 1970. During his last year at the University, Dean Summers was appointed administrator on special assignment, serving as special assistant to Vice President Cashman. President Moos wished Dean Summers' appointment to be precedent-setting in the freeing of outstanding administrative officers from direct administrative responsibilities before retirement to enable them to record events that transpired during their tenures and to project the needs of their offices for the future. Administrative responsibility for the Office of Admissions and Records was assumed by Theodore Kellogg.

Professor Gisela Konopka, in addition to her duties in the School of Social Work, became a special assistant to the vice president in 1968. This appointment, also designed to be precedent-setting, sought to bring to bear on the personnel program the constructs, principles, ideas, and research of a senior staff member from a related academic discipline.

Another innovation was the appointment of a student, James Rothenberger, to the central staff as an administrative assistant. He contributed valuable insights to policy considerations, especially in the areas of residence hall living and drug education. In 1969-1970 he centered his work primarily in the area of drug information and education.

In May 1968 Donald Zander was appointed assistant to the vice president, continuing to carry responsibilities as director of student unions. He was appointed assistant vice president for student affairs in July 1969 and was later assigned responsibility for the Department of the Minnesota Union, the Student Activities Bureau, the Disciplinary Counseling Office, and the Student Housing Bureau.

In April 1968 James Reeves, assistant dean of students, was assigned to the central office and assumed responsibility for coordination of special programs for disadvantaged students. In July 1969, he was appointed assistant vice president for student affairs and later assumed responsibility for the Student Counseling Bureau, the Office of Student Financial Aid, the Foreign Student Adviser's Office, the Health Service, Admissions and Records, and Special Programs. He also represented the vice president's office in contacts with the coordinate campuses.

Organization—The most significant organizational changes during the biennium were the creation of the Office itself and the reassignment of programs and services offered and administered through it. A major change took place as a result of the retirement of the dean of students: the offices formerly reporting to the dean began to report directly to the vice president and his assistant vice presidents.

Student Affairs branch offices on the St. Paul campus were consolidated in Coffey Hall during the biennium. The new arrangement provides ample room for a study-skills center and testing room and for counseling bureau, student activities, student government, and off-campus housing offices. Space is also available for anticipated personnel additions, including a St. Paul campus coordinator and full-time staffing for a Student Financial Aid office.

The Speech and Hearing Clinic, formerly reporting to the dean of students and then to the Office of the Vice President for Student Affairs, was transferred to the College of Liberal Arts during the biennium and became part of the Department of Speech Science, Pathology, and Audiology.

A committee was appointed by Vice President Cashman to study the student affairs area and to make recommendations. Some of the committee's recommendations have been implemented and the remainder are under active consideration.

Significant Events—In a biennium characterized by strong currents of student unrest, several significant events can be identified.

Morrill Hall Incident—Heightened interest in the ability and the commitment

of the University to serve disadvantaged populations emerged and solidified after the assassination of Dr. Martin Luther King, Jr., in April 1968. The University responded to the murder by establishing a Martin Luther King Scholarship Fund, but was faced a few days later with demands for establishment of at least 200 full scholarships for black Minnesota high school students, full consideration of the proposal to eliminate tuition for underprivileged black high school students, establishment of guidance counseling and recruitment agencies especially geared to the needs of black students, establishment of a board to review Athletic Department policies in regard to black athletes, serious consideration of the possibility of naming the new West Bank library in honor of Martin Luther King, representation of black students on all major University policy-determining groups, and reflection in the University curriculum of the contributions of black people to the commonwealth and culture of America.

In January 1969 approximately 70 blacks and 70 whites occupied Morrill Hall. Among the consequences of the occupation were the indictment of three black students, the passage of the Morrill Hall Act by the Legislature, formation of a liberation coalition, and a court finding of guilt and subsequent sentencing of two of the three students. The establishment of Afro-American and American Indian Studies Departments and the establishment of the Martin Luther King Program, along with accelerated efforts to employ minority persons, led to an improved campus climate for minorities.

Liberation Coalition—Following the indictment of three students identified with the Morrill Hall incident, a Liberation Coalition was formed. Students from many segments of campus joined with nonstudents, including faculty and religious advisers, to form a movement in support of the indicted students. The rhetoric often was militant, the activities and behavior responsible. Efforts by radicals to take over the movement were successfully defeated. The coalition persisted for the duration of the trial. All of its demonstrations were nonviolent.

Reaction to Cambodia, Kent State, and Jackson State—The invasion of Cambodia by U.S. troops triggered a number of events on the campuses and streets of the nation. The killing of white students at Kent State and black students at Jackson State, which came upon the heels of the invasion, set off activities at the University as well as elsewhere. Participants again ranged from conservative to radical, and the activities largely took the form of marches to state and federal establishments, teach-ins, house-to-house visits in the community, University Senate action, and a special graduation exercise. A strike was called, but the strike involved activities just mentioned; the University was not shut down.

Among activities of questionable value were the occupation of Coffman Union and the daily assaults upon Morrill Hall and the Armory. No arrests were made at Coffman Union and the building resumed its customary services. Some of those who demonstrated at Morrill Hall and the Armory were arrested but all were acquitted.

Criminal Justice Studies Department Incident—When marches on Washington and demonstrations on campus failed to end the war, some radicals, identified with Students for a Democratic Society (SDS), resorted to "trashing." On the Twin Cities campus, property was destroyed at the Criminal Justice Studies Department (CJS); at Duluth there was an abortive attempt to fire the Armory. Five persons were arrested and convicted in connection with the CJS incident.

In the periods of stress, crisis management became the broad responsibility of all central administrative officers, University police, faculty and student volunteers, and citizens, but was the particular responsibility of the Office of the Vice President for Student Affairs. However, services offered by Student Affairs units to students, faculty, and others continued.

Special Programs—In addition to the large units under the administration of the Office of the Vice President for Student Affairs, there are a number of programs for specialized groups.

Dads Association—Irene Moore, Coordinator

Membership in the University of Minnesota Dads Association increased from 1,627 in 1968-1969 to 1,754 in 1969-1970. Eleven meetings were held during the

biennium on such topics as student reaction, financial aids available, and the Morrill Hall incident.

Orientation Coffee Hours held by the Association were attended by approximately 2,000 parents during the biennium. Four orientation meetings were held in neighborhood high schools in each year of the biennium and seven were held in out-state communities. Other activities included Freshman Scholarship Receptions attended by 700 in 1968 and 600 in 1969 and several campus cultural events.

Disciplinary Counseling Office—L. F. Snoxell, Director

The most significant development of the biennium was the organization of groups of students to effect social, educational, and political change. These groups, often augmented by nonstudents, pressed vigorously for termination of the Vietnam War, abolition of ROTC, changes in University investment practices, educational changes, community control over use of property, and elimination of Defense Department sponsored research, and protested recruitment on campus by corporations supplying certain war materials, police and National Guard tactics during campus demonstrations, and the existence of the Criminal Justice Studies Department. Militant group activities led at times to campus disruptions, which in one instance required the clearing of the Armory grounds by the police, in another the filing of charges and arrest of 14 persons demonstrating around Morrill Hall, and in a third the filing of charges and arrest of five persons for damage to the Criminal Justice Studies Department facilities. In the latter case, only one of the five arrested was a currently enrolled student.

During the biennium, 293 new disciplinary offenses involving 279 students (218 male and 61 female) were reported to the Disciplinary Counseling Office (DCO), compared to the 1966-1968 total of 451 students (372 male and 89 female). Individual cases handled in the Office, including new and reopened cases, consultation and counseling cases, and closed cases requiring services, numbered 877 compared to 1,251 for the previous biennium. The case load of the DCO constituted 1.06 percent of the student population of the Twin Cities campus.

The 116 judiciary boards in residence halls, sororities, fraternities, and co-operatives exercised jurisdiction over approximately 5,600 students during the biennium, holding 692 meetings, hearing 1,386 complaints against 1,123 students, and taking 1,530 actions. The Committee on Student Behavior heard and took action on 11 cases against individual students in 1968-1970, and the Campus Judiciary Council heard four cases against student organizations.

The decrease in the DCO case load may be attributed in part to the demise of the *in loco parentis* philosophy and the deemphasis of rehabilitation as the goal of the discipline program. A second significant factor was a report of a subcommittee of the Student Affairs Study Committee recommending that the University narrow its interests in student behavior to on-campus offenses and pattern its discipline system after the legal model. A third factor was the residence hall experimental open-house policy, which placed responsibility for personal behavior on the individual student.

Martin Luther King Program—Cynthia Neverdon, Coordinator

The Martin Luther King (MLK) Program was established in April 1968 to aid students who need academic and/or financial assistance in order to attend the University. The Program, developed primarily for residents of the state, serves students with a variety of cultural, racial, and educational backgrounds.

Concerted effort is made to coordinate and make available to MLK students such University services as counseling, advising, tutoring, and financial aid. Staff of the Office of Admissions and Records are involved with initial contacts and recruitment, dissemination of information about the University and the MLK Program, assistance with admissions and financial aid forms, and follow-up. Tutorial units in the College of Liberal Arts and in the General College's Consolidated HELP Center provide program planning and tutorial assistance and personal and vocational counseling. The Office of Student Financial Aid analyzes the financial needs of MLK students, distributes funds to meet these needs, and provides assistance in budget planning.

During the biennium, 885 students were admitted to the College of Liberal Arts, General College, Institute of Technology, College of Education, or the Col-

lege of Agriculture, Forestry, and Home Economics through the Martin Luther King Program. A total of 502 registered for courses during the biennium.

Minnesota Planning and Counseling Center for Women—Anne T. Truax, Acting Director

In May 1969 the leadership of the Minnesota Planning and Counseling Center for Women was changed and with it came a complete revision in the direction of the office.

During the biennium 535 women joined the Minnesota Plan, bringing the active membership to 3,417 women. Activities of the biennium included improvement of the Child Care Center, a comparison study of salaries of male and female faculty members, and publication of three issues in the new series of *The Planner*. Staff of the Minnesota Plan received 15 invitations to speak and attended nine conferences. Quarterly information hours were instituted for women contemplating a return to the University, and a seminar on discrimination against women was held for all campus placement officers. In spring quarter 1970, the first fully accredited class in family studies, *Life Styles of the Educated American Woman*, was offered, with an enrollment of 27 students.

The Child Care Center, a self-supporting baby-sitting service, is available to children of students during their parents' class hours. Four University students, each working four hours per day, are employed as supervisors. In 1969-1970, the Center's services were used by 153 children from 141 families. The Center was open 170 days during 1969-1970, providing care to an average of 23 children per day.

Orientation Office—Harry E. Myers, Coordinator

During the biennium 20,800 students participated in the two-day orientation programs, which included presentations dealing with personal decision-making, interpersonal relations, introduction to the University community, academic decision-making, and registration. Week-long training sessions with 45 staff and faculty members were held for 16 orientation leaders in each of the two years. In a comprehensive evaluation of the orientation program conducted through questionnaires and interviews with new students, only 10 percent of the students made negative comments about the program.

Freshman Camp was attended by 1,690 new students during the biennium. Weekend training retreats were held for 600 student camp counselors and a foreign student scholarship program was initiated. Evaluation and research included reports on the kind of students attending, their expectations and experiences, and the diversity of Freshman Camp.

During the biennium 25,000 students attended one or more events during each Welcome Week. Approximately 100 students and 260 faculty and staff were involved in the planning and presentation of the 163 academic, cultural, and social programs presented.

Williamson Weekends, formerly Dean's Retreats, were transferred to the jurisdiction of the Orientation Office as an on-going orientation experience. The 14 weekend programs were attended by 475 students, with 80 students planning the weekends and 70 faculty members presenting the programs.

Social Work Student Internship Program—Jeannette Milgrom, Coordinator

The Social Work Student Internship Program was initiated in 1969 by the School of Social Work and the Office of the Vice President for Student Affairs. Through the Program, which is based on the concept of the University as a community with the potential of studying itself and improving its own quality, graduate students in social work are given field work assignments at the University. The interns become involved in provision of services to the student population, benefiting the students served and augmenting their own professional education.

The Program was set up on an experimental basis in fall 1969 with six interns and one half-time field instructor. Expansion of the Program to include 14 first-year graduate students and two part-time field instructors is planned for 1970. The interns usually stay with the field placement for a nine-month period, October through June, and work two to three days per week.

Interns have been placed with University services including the Office of Student Financial Aid, the Office of the Foreign Student Adviser, the St. Paul Student Affairs Office, the Minnesota Planning and Counseling Center for Women, the Office of Career Development, and the University YMCA/YWCA. They have also been involved in some of the newer services in the Cedar-Riverside and Dinkytown areas, working primarily with problems of run-away youth, drug use, and needs of young people of the "counterculture." In their work, the interns make an effort to evaluate and indicate ways in which an office or service might be more effective in meeting student needs. They also act in an advocacy role, representing the student to the various parts of the University system while attempting to define their roles and functions as social workers.

Student Life Studies—Ralph Berdie, Director

Student Life Studies is a central research unit within the Office of the Vice President for Student Affairs. Its purpose is to provide a continuing research basis for the educational and service programs provided to students by the various divisions of Student Affairs. Areas investigated during the biennium included purposes served by religious foundations established for University students, characteristics of students who attend freshman camp and their evaluation of the experience, characteristics and behaviors of professional counselors most likely to induce change in students counseled, extent to which students use University resources to extend educational experiences, extent to which students are satisfied with their University experiences, University and non-University conditions as sources of expressed student hostility toward the University, and student attitudes toward student participation in University governance.

Efforts were initiated during the biennium to increase the interdisciplinary nature of Student Life Studies. Arrangements were made to appoint an anthropologist to the staff to supplement what has been primarily a psychological approach.

In June 1970, Student Life Studies was moved from an off-campus location to the center of the campus and more space was made available to the program. The central location will make the office more accessible to research and service personnel in other University units and will give the staff greater access to students and campus activities.

During the biennium, the staff issued 75 publications and reports, and those who carried teaching responsibilities delivered approximately 400 lectures and speeches. In addition, staff members attended approximately 400 meetings. Student Life Studies staff members had direct influence on such University programs as new student orientation, data systems development, task forces on student affairs and minority group student programs, the Youth Development Center, the Center for Psychological Measurement, Student Affairs Professional Development Committees, the Center for Vocational Interest Measurement Research, the *Minnesota Daily* Committee, the Union Board of Governors, the Student Personnel Work Institute, the Counseling Psychology Program, the Student Housing Program, and the CLA honors program.

Students' Religious Activities Bureau—Henry Allen, Coordinator

The program of interreligious cooperation established in 1947 continued to function in an arena of doctrinal changes in some faiths and changes in the role and function of foundation staffs. Grouping of staffs into campus ministries continued to be the approach for many of the religious activities and programs. Two new groups, the Geneva Forum of the Christian Reformed Church and the International Students, Inc., became established on campus during the biennium. The coordinator, who had served in that capacity since 1947, retired at the end of the biennium.

During the biennium, the coordinator assisted in setting up an experimental three-quarter humanities course on world religions in the twentieth century, contributed a chapter on religious activities in state independent colleges and universities to the *Handbook of College and University Administration*, and worked with the Panel of World Religions and the Panel of Americans. The

latter entered a new phase of seminar study and credit under the provisions of Humanities 70. The coordinator also provided assistance and guidance to such projects as the Coffee House Extempore on Cedar Avenue and the Dionysious Center ministering to the needs of impoverished students and assisted in development of a KTCA television series covering many aspects of religion at the University.

OFFICE OF ADMISSIONS AND RECORDS

Theodore E. Kellogg, *Director*

Dean Robert E. Summers, who directed the affairs of the Office from 1946 until 1969, retired in June 1970. During his administration, the University encountered a rapid influx of students, with enrollment growing to 28,312 in 1947, and then falling to 18,682 in 1951. In fall quarter 1969, more than 50,000 students were registered at the University.

In 1969 Theodore Kellogg assumed administrative responsibility for the Office and in 1970 he was appointed director of admissions and records. The University has since made progress in the area of data management on all of its campuses, and the Office of Admissions and Records has been reorganized to make it more responsive to administrative and student needs.

Three areas of major development can be identified, along with a number of additional events and changes. First, concrete steps were taken during the biennium to provide better information to prospective students. Additional professional staffing has made possible more adequate participation in high school and college information programs, and significant progress has been made in providing information about University opportunities to minority groups through the Martin Luther King Program.

Second, many steps were taken to provide a foundation for broader application of the IBM 360-50 computer. Included were finalization of the student record data base through identification and definition of essential elements, some regular use of typewriter and display terminals for data input and retrieval, and detailed final planning for new systems, forms, and programs associated with data collection and applications. In this connection, a great deal of attention was given to problems associated with security and the release of information. Except for normal internal uses, the release of virtually all student information requires a written release from the student.

A third area of major significance is that of planned growth. The concept of enrollment management introduced several years ago has now had definitive effects on office procedures, has changed enrollment projection models, and has created new information needs for school counselors. Corollaries of the new approach seem to be improved retention rates and renewed discussion of missions and selection approaches. One result of the concept may well be new kinds of admission models.

The changes that have occurred and the more extensive changes that are planned are dependent on the continued cooperation of students and faculty of Twin Cities and coordinate campus units, assistance from the Data Processing Center, and administrative support and encouragement.

During the biennium developments in grading and instructional approaches, such as pass-no credit grading, expanded independent study, and extra credit options, added to the variability and complexity of accurate record-keeping. In addition, further steps were taken to provide for the general security of records through multiple copy microfilming and improved maintenance procedures. Additional improvements in this area are contemplated. The Office continued to provide administrative services associated with educational deferments, social security benefits, war orphan and veterans benefits, and special programs such as HELP, New Careers, Upward Bound, and TALENT SEARCH; one or more of these programs affect nearly half of the total student body. Administrative services also were provided for cooperative arrangements such as the Wisconsin-Minnesota compact and the cooperative student exchange program with Maclester College.

In mid-January 1969, the Office experienced a disruption with the occupation of Morrill Hall; a lesser diversion occurred with the spring 1970 "strike."

Inadequate space for efficient operation in Minneapolis continued to plague the Office, resulting in poor working conditions, excessive staff turnover, and inability to establish certain new procedures and effective office and staff configurations. The St. Paul office, on the other hand, was moved into very adequate and improved new space.

A number of efforts have been made to integrate the Minneapolis and St. Paul operations. Staff responsibilities and procedures have been shaped to bridge the two areas, and procedures for registration of graduate students in St. Paul have been developed. Admissions and Records staff members were able to make significant contributions to the remodeling and upgrading of general and special-purpose classrooms in St. Paul under special legislative appropriations.

Enrollment—Record-breaking numbers of students were enrolled at the University during the biennium. Individuals instructed at all educational levels (Table V) numbered 146,682 in 1968-1969 and 153,160 in 1969-1970, compared to 140,663 in 1966-1967 and 146,610 in 1967-1968. Regular day-college enrollments for the academic year and summer sessions (Table I) totaled 63,577 in 1968-1969 and 64,610 in 1969-1970, compared to 58,409 in 1966-1967 and 60,144 in 1967-1968. Academic year enrollments rose to 55,075 in 1968-1969 and 56,181 in 1969-1970, compared to 50,334 in 1966-1967 and 52,487 in 1967-1968. In 1969-1970, the Duluth campus accounted for 5,563 students, the Morris campus for 1,569, and the Crookston campus for 480. Major enrollment gains were made in the Institute of Technology, in the Graduate School, and at Morris.

Summer Session enrollments totaled 21,077 in 1968 and 21,022 in 1969, compared to 18,621 in summer 1967. Second-term enrollments equaled 71 percent of first-term enrollments in 1968 and 69 percent in 1969.

Extension Division enrollments (Table IV) totaled 59,480 in 1968-1969 and 63,070 in 1969-1970, compared to 62,255 in 1967-1968. Subcollegiate programs (Table III) enrolled 23,512 students in 1968-1969 and 25,394 in 1969-1970, compared to 24,211 in 1967-1968.

Degrees and Certificates Conferred—Degrees conferred by the University (Table VI) totaled 9,617 in 1968-1969 and 10,127 in 1969-1970, compared to 8,043 in 1966-1967 and 8,524 in 1967-1968. Certificates conferred (Table VII) totaled 280 in 1968-1969 and 265 in 1969-1970.

Ratio of Men to Women—Male students comprised 62.8 percent of the day-college enrollments during the 1968-1969 regular academic year and 62.2 percent in 1969-1970, compared to 64.1 percent in 1967-1968. The minor shift in student body composition may be a reflection of military manpower demands.

Out-of-State Students—Out-of-state students comprised 12.2 percent of the total student body each year of the biennium (Table X). The Graduate School continued to have the largest proportion of students from outside Minnesota, 47.3 percent in 1968-1969 and 45.6 percent in 1969-1970. The number of foreign students enrolled totaled 1,649 in 1968-1969 and 1,760 in 1969-1970, comprising about 3 percent of the student body as in the preceding biennium.

New Students—There were 15,500 new students in 1968-1969 and 15,788 in 1969-1970, compared to 15,224 in 1967-1968. New student enrollments included 9,709 freshmen in 1968-1969 and 9,701 in 1969-1970, compared to 9,671 in 1967-1968 (Table VIII). New students with advanced standing numbered 5,791 in 1968-1969 and 6,087 in 1969-1970, compared to 5,553 in 1967-1968 (Table IX).

During the biennium 92 percent of entering freshmen were from Minnesota. In 1969-1970, approximately 12 percent of the freshmen of Minnesota origin came from Minneapolis public schools, 6 percent from St. Paul public schools, 68 percent from other Minnesota public schools, and 14 percent from private schools. The proportion of new undergraduate advanced standing students entering from Minnesota colleges was 67 percent in 1968-1969 and 64 percent in 1969-1970.

TABLE I. COLLEGIATE ENROLLMENT BY COLLEGES AND SCHOOLS, 1968-1970

College or School	1968-1969			1969-1970			Gain	Loss
	Men	Women	Total	Men	Women	Total		
Agriculture, Forestry, and Home Economics								
Senior	390	231	621	391	262	653	32	..
Junior	393	260	653	372	283	655	2	..
Sophomore	471	396	867	470	412	882	15	..
Freshman	348	252	600	363	321	684	84	..
Adult Special	97	73	170	112	91	203	33	..
Total	1,699	1,212	2,911	1,708	1,369	3,077	166	..
Business Administration								
Senior	521	23	544	538	20	558	14	..
Junior	480	24	504	507	20	527	23	..
Adult Special	96	2	98	81	6	87	..	11
Total	1,097	49	1,146	1,126	46	1,172	26	..
Veterinary Medicine								
Senior	59	1	60	51	6	57	..	3
Junior	51	6	57	50	5	55	..	2
Sophomore	50	5	55	55	6	61	6	..
Freshman	61	6	67	53	9	62	..	5
Adult Special	2	..	2	2	..	2	..	..
Total	223	18	241	211	26	237	..	4
School of Dentistry								
Senior	94	2	96	104	..	104	8	..
Junior	107	..	107	96	1	97	..	10
Sophomore	97	1	98	105	1	106	8	..
Freshman	109	1	110	113	1	114	4	..
Adult Special	4	..	4	2	..	2	..	2
Total	411	4	415	420	3	423	8	..
Dental Hygiene								
Second Year	..	47	47	1	52	53	6	..
First Year	1	54	55	..	60	60	5	..
Adult Special	..	4	4	..	11	11	7	..
Total	1	105	106	1	123	124	18	..
College of Education								
Senior	500	1,289	1,789	545	1,287	1,832	43	..
Junior	306	890	1,196	390	843	1,233	37	..
Sophomore	58	102	160	65	118	183	23	..
Freshman	14	43	57	16	47	63	6	..
Adult Special	273	377	650	294	448	742	92	..
Total	1,151	2,701	3,852	1,310	2,743	4,053	201	..
Institute of Technology								
Senior	962	13	975	947	25	972	..	3
Junior	811	18	829	960	16	976	147	..
Sophomore	825	24	849	832	24	856	7	..
Freshman	727	20	747	856	35	891	144	..
Adult Special	113	11	124	155	21	176	52	..
Total	3,438	86	3,524	3,750	121	3,871	347	..
Graduate School								
Twin Cities,								
Duluth	6,621	2,406	9,027	6,709	2,670	9,379	352	..
Mayo	643	21	664	587	15	602	..	62
Total	7,264	2,427	9,691	7,296	2,685	9,981	290	..
Law School								
Third Year	327	16	343	291	25	316	..	27
Second Year	174	15	189	248	21	269	80	..
First Year	1	..	1	..	..	..	..	1
Adult Special	4	..	4	1	..	1	..	3
Total	506	31	537	540	46	586	49	..
Biological Sciences								
Senior	29	12	41	49	18	67	26	..
Junior	50	10	60	66	24	90	30	..
Adult Special	11	6	17	21	13	34	17	..
Total	90	28	118	136	55	191	73	..

DIVISIONS OF STUDENT AFFAIRS

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TABLE I. (CONTINUED)

College or School	1968-1969			1969-1970			Gain	Loss
	Men	Women	Total	Men	Women	Total		
Medical School								
Senior	157	9	166	183	7	190	24	..
Junior	177	7	184	166	13	179	..	5
Sophomore	148	12	160	145	16	161	1	..
Freshman	147	17	164	146	22	168	4	..
Adult Special	4	1	5	3	..	3	..	2
Total	633	46	679	643	58	701	22	..
Medical Technology								
Senior	2	63	65	..	62	62	..	3
Junior	1	58	59	..	55	61	2	..
Adult Special	1	20	21	1	19	20	..	1
Total	4	141	145	7	136	143	..	2
School of Nursing								
Third Year	..	103	103	..	93	93	..	10
Second Year	2	189	191	1	152	153	..	38
First Year	..	..	..	..	..	..	..	..
Adult Special	..	2	2	..	4	4	2	..
Total	2	294	296	1	249	250	..	46
College of Pharmacy								
Senior	73	16	89	69	15	84	..	5
Junior	74	16	90	65	14	79	..	11
Sophomore	73	15	88	81	22	103	15	..
Freshman	24	10	34	17	8	25	..	9
Adult Special	5	2	7	1	..	1	..	6
Total	249	59	308	233	59	292	..	16
College of Liberal Arts								
Senior	2,074	1,318	3,392	2,177	1,383	3,560	168	..
Junior	1,772	1,237	3,009	1,753	1,340	3,093	84	..
Sophomore	3,583	3,138	6,721	3,569	3,236	6,805	84	..
Freshman	2,644	2,715	5,359	2,291	2,626	4,917	..	442
Adult Special	352	404	756	308	344	652	..	104
Total	10,425	8,812	19,237	10,098	8,929	19,027	..	210
University College								
Senior	23	19	42	44	30	74	32	..
Junior	14	11	25	24	20	44	19	..
Sophomore	..	..	..	1	..	1	1	..
Adult Special	2	2	4	1	1	2	..	2
Total	39	32	71	70	51	121	50	..
General College								
Second Year	1,238	530	1,768	1,083	532	1,615	..	153
First Year	1,461	782	2,243	1,484	711	2,195	..	48
Adult Special	126	61	187	94	62	156	..	31
Total	2,825	1,373	4,198	2,661	1,305	3,966	..	232
School of Public Health								
Senior	68	28	96	81	19	100	4	..
Junior	..	..	..	..	..	..	..	..
Sophomore	..	..	..	..	..	..	..	..
Adult Special	64	10	74	60	22	82	8	..
Total	132	38	170	141	41	182	12	..
Physical Therapy								
Senior	5	43	48	15	44	59	11	..
Junior	16	48	64	16	41	57	..	7
Adult Special	..	..	..	..	1	1	1	..
Total	21	91	112	31	86	117	5	..
Occupational Therapy								
Senior	1	20	21	..	22	22	1	..
Junior	..	22	22	2	31	33	11	..
Adult Special	..	..	..	..	..	..	..	..
Total	1	42	43	2	53	55	12	..

BIENNIAL REPORT

TABLE I. (CONTINUED)

College or School	1968-1969			1969-1970			Gain	Loss
	Men	Women	Total	Men	Women	Total		
Duluth								
Senior	761	457	1,218	788	473	1,261	43	..
Junior	667	440	1,107	643	457	1,100	..	7
Sophomore	718	499	1,217	692	480	1,172	..	45
Freshman	959	723	1,682	970	761	1,731	49	..
Adult Special	112	121	233	191	108	299	68	..
Total	3,217	2,240	5,457	3,284	2,279	5,563	106	..
Morris								
Senior	111	70	181	130	100	230	49	..
Junior	139	113	252	176	132	308	56	..
Sophomore	222	140	362	222	157	379	17	..
Freshman	299	211	510	341	265	606	96	..
Adult Special	30	26	56	22	24	46	..	10
Total	801	560	1,361	891	678	1,569	208	..
Crookston								
Second Year	132	25	157	155	17	172	15	..
First Year	259	23	282	252	34	286	4	..
Adult Special	10	8	18	11	11	22	4	..
Total	401	56	457	418	62	480	23	..
Net Academic Year ..	34,630	20,445	55,075	34,978	21,203	56,181	1,106	..
Summer Session								
First Term	9,657	7,672	17,329	9,533	7,741	17,274	..	55
Second Term	7,529	4,729	12,258	7,271	4,726	11,997	..	261
Subtotal								
Summer	17,186	12,401	29,587	16,804	12,467	29,271	..	316
Less Duplicates ..	5,650	3,407	9,057	5,366	3,368	8,734	..	323
Total Summer	11,536	8,994	20,530	11,438	9,099	20,537	7	..
Plus Mayo	332	15	547	472	13	485	..	62
Net Summer Session ..	12,068	9,009	21,077	11,910	9,112	21,022	..	55
Academic Plus								
Summer	46,698	29,454	76,152	46,888	30,315	77,203	1,051	..
Less Duplicates	7,719	4,856	12,575	7,660	4,933	12,593	18	..
NET TOTAL	38,979	24,598	63,577	39,228	25,382	64,610	1,033	..

TABLE II-A. COLLEGIATE ENROLLMENT BY QUARTERS, 1968-1969

College or School	First Summer Session 1968			Second Summer Session 1968			Fall 1968			Winter 1969			Spring 1969			Total Individual Registration		
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
Ag., For., and H.E.	268	387	655	256	214	470	1,520	1,078	2,598	1,444	1,011	2,455	1,352	978	2,330	1,807	1,379	3,186
Business Administration	483	29	512	411	25	436	998	48	1,046	893	41	934	840	39	879	1,275	61	1,336
Veterinary Medicine	35	.....	35	28	1	29	219	18	237	217	18	235	215	18	233	223	18	241
Dentistry	63	3	66	48	2	50	411	4	415	408	4	412	406	4	410	411	4	415
Dental Hygiene .....	.....	7	7	.....	10	10	1	103	104	1	102	103	1	102	103	1	105	106
Education	796	1,888	2,684	598	1,182	1,780	945	2,356	3,301	905	2,176	3,081	878	2,141	3,019	1,789	3,801	5,590
Inst. of Technology	880	26	906	723	18	741	3,229	80	3,309	3,038	70	3,108	2,958	69	3,027	3,694	96	3,790
Graduate:																		
Twin Cities, Duluth	2,515	1,304	3,819	1,949	787	2,736	5,905	2,039	7,944	5,465	1,896	7,361	5,345	1,916	7,261	7,544	3,146	10,690
Mayo	532	15	547	529	15	544	593	19	612	576	18	594	587	15	602	699	21	720
Law School	12	.....	12	17	2	19	486	31	517	467	29	496	456	29	485	506	31	537
Biological Sciences	38	15	53	21	23	44	84	25	109	79	25	104	80	24	104	113	44	157
Medicine	354	21	375	332	16	348	619	43	662	603	43	646	580	41	621	689	51	740
Medical Technology	2	29	31	1	17	18	3	122	125	3	113	116	4	115	119	5	142	147
Nursing .....	.....	133	133	.....	111	111	2	292	294	1	284	285	1	279	280	2	299	301
Pharmacy	40	10	50	28	5	33	243	57	300	228	56	284	225	55	280	252	59	311
Liberal Arts	2,904	2,550	5,454	2,128	1,558	3,686	9,280	7,812	17,092	8,639	7,169	15,808	8,489	7,043	15,532	11,911	10,239	22,150
University College	14	13	27	15	11	26	36	30	66	34	28	62	34	27	61	40	38	76
General College	352	149	501	268	134	402	2,230	1,140	3,370	2,084	1,057	3,141	1,966	1,018	2,984	2,996	1,438	4,434
Public Health	75	42	117	123	45	168	123	35	158	108	32	140	113	32	145	188	72	260
Physical Therapy	8	42	50	3	21	24	20	84	104	20	82	102	18	79	97	21	92	113
Occup. Therapy	1	23	24	1	19	20	1	42	43	1	35	36	1	35	36	1	43	44
Duluth	731	847	1,578	557	516	1,073	2,859	2,039	4,898	2,692	1,918	4,610	2,607	1,852	4,459	3,566	2,701	6,267
Morris	86	154	240	22	12	34	756	519	1,275	724	498	1,222	723	493	1,216	845	664	1,509
Crookston .....	.....	.....	.....	.....	.....	.....	326	43	369	299	49	348	257	47	304	401	56	457
TOTAL	10,189	7,687	17,876	8,058	4,744	12,802	30,889	18,059	48,948	28,929	16,754	45,683	28,136	16,451	44,587	38,979	24,598	63,577

TABLE II-B. COLLEGIATE ENROLLMENT BY QUARTERS, 1969-1970

College or School	First Summer Session 1969			Second Summer Session 1969			Fall 1969			Winter 1970			Spring 1970			Total Individual Registration		
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
Ag., For., and H.E.	255	401	656	175	205	380	1,502	1,220	2,722	1,454	1,143	2,597	1,317	1,126	2,443	1,811	1,548	3,359
Business Administration	536	21	557	417	21	438	1,022	42	1,064	939	31	970	857	31	888	1,329	59	1,388
Veterinary Medicine	29	5	34	26	1	27	208	26	234	208	26	234	207	26	233	211	26	237
Dentistry	74	1	75	63	1	64	417	3	420	418	3	421	414	3	417	422	3	425
Dental Hygiene	1	8	9	1	3	4	1	120	121	1	113	114	1	119	120	2	124	126
Education	794	1,890	2,684	555	1,075	1,630	1,063	2,426	3,489	1,032	2,151	3,183	972	2,094	3,066	1,874	3,860	5,734
Inst. of Technology	873	39	912	718	26	744	3,451	109	3,560	3,309	104	3,413	3,198	94	3,292	3,996	139	4,135
Graduate																		
Twin Cities, Duluth	2,277	1,362	3,639	1,819	847	2,666	5,964	2,276	8,240	5,611	2,089	7,700	5,494	2,121	7,615	7,488	3,423	10,911
Mayo	472	13	485	468	13	481	449	12	461	489	14	503	534	14	548	633	16	649
Law School	22	3	25	14	4	18	529	46	575	512	43	555	504	42	546	540	46	586
Biological Sciences	44	25	69	37	24	61	121	48	169	121	40	161	118	37	155	159	75	234
Medicine	294	22	316	294	20	314	617	55	672	619	53	672	604	56	660	700	60	760
Medical Technology	4	24	28	2	13	15	7	128	135	6	111	117	4	97	101	7	140	147
Nursing	—	84	84	—	38	38	1	242	243	1	239	240	1	237	238	1	266	267
Pharmacy	40	13	53	34	10	44	226	59	285	218	55	273	215	54	269	247	60	307
Liberal Arts	2,981	2,585	5,566	2,087	1,640	3,727	8,916	7,806	16,722	8,266	7,240	15,506	7,691	6,924	14,615	11,715	10,327	22,042
University College	29	21	50	21	13	34	63	48	111	57	44	101	56	39	95	73	58	131
General College	383	220	608	274	162	436	2,013	1,074	3,087	1,891	942	2,833	1,782	910	2,692	2,849	1,409	4,258
Public Health	81	30	111	131	41	172	129	37	166	127	39	166	131	34	165	197	72	269
Physical Therapy	8	26	34	9	15	24	25	81	106	26	80	106	26	67	93	31	86	117
Occup. Therapy	—	20	20	1	21	22	2	51	53	2	48	50	2	49	51	2	55	57
Duluth	737	802	1,539	557	488	1,045	2,903	2,062	4,965	2,714	1,974	4,688	2,563	1,897	4,460	3,615	2,683	6,298
Morris	65	138	203	34	56	90	848	634	1,482	809	609	1,418	779	598	1,377	908	785	1,693
Crookston	1	1	2	2	2	4	379	54	433	336	45	381	270	48	318	418	62	480
TOTAL	10,005	7,754	17,759	7,739	4,739	12,478	30,856	18,659	49,515	29,166	17,236	46,402	27,740	16,717	44,457	39,228	25,382	64,610

TABLE III. SUBCOLLEGIATE ENROLLMENT, 1968-1970

	1968-1969			1969-1970			Gain	Loss
	Men	Women	Total	Men	Women	Total		
Schools								
Southern School and Station, Waseca								
Senior	40	27	67	28	16	44	.....	23
Junior	37	21	58	40	10	50	.....	8
Sophomore	47	9	56	27	9	36	.....	20
Freshman	38	8	46	11	6	17	.....	29
Total	162	65	227	106	41	147	.....	80
University High School, Minneapolis								
Nursery School, Minneapolis	56	65	121	69	59	128	7	.....
Net Total, Schools	270	175	445	235	150	385	13	60
Agricultural Short Courses								
St. Paul	12,164	3,178	15,342	12,628	3,434	16,062	720	.....
Southern School and Station, Waseca								
Southwest Experiment Station, Lambertton	3,105	808	3,913	2,757	854	3,611	.....	302
West Central School and Station, Morris	1,580	75	1,655	3,035	174	3,209	1,554	.....
Net Total, Short Courses	1,675	482	2,157	2,026	101	2,127	.....	30
TOTAL	18,524	4,543	23,067	20,446	4,563	25,009	1,942	.....
TOTAL	18,794	4,718	23,512	20,681	4,713	25,394	1,882	.....

TABLE IV. EXTENSION ENROLLMENT, 1968-1970

	1968-1969			1969-1970			Gain	Loss
	Men	Women	Total	Men	Women	Total		
Evening Classes	18,170	12,326	30,496	19,070	14,340	33,410	2,914	.....
Extension Short Courses	3,417	1,077	4,494	2,853	1,635	4,488	.....	6
Independent Study (Correspondence)	7,042	4,889	11,931	5,952	3,945	9,897	.....	2,034
Nolte Center for Continuing Education	9,476	3,083	12,559	11,294	3,981	15,275	2,716	.....
TOTAL	38,105	21,375	59,480	39,169	23,901	63,070	3,590	.....

TABLE V. ENROLLMENT SUMMARY, 1968-1970

	1968-1969			1969-1970			Gain	Loss
	Men	Women	Total	Men	Women	Total		
Collegiate Students	39,085	24,605	63,690	39,311	25,385	64,696	1,006	.....
Subcollegiate Students	18,794	4,718	23,512	20,681	4,713	25,394	1,882	.....
Extension Students	38,105	21,375	59,480	39,169	23,901	63,070	3,590	.....
TOTAL	95,984	50,698	146,682	99,161	53,999	153,160	6,478	.....

TABLE VI. DEGREES CONFERRED, 1968-1970

College and Degree	1968-1969			1969-1970		
	Men	Women	Total	Men	Women	Total
Agriculture, Institute of, and Business Administration, School of						
Bach of Agric Bus Admin with high dist	2	.....	2	1	.....	1
Bach of Agric Bus Admin with dist	2	.....	2	.....	.....	.....
Bach of Agric Bus Admin	20	.....	20	20	.....	20
Agriculture, Institute of, and Education, College of						
BS with dist (Ag Ed)	5	.....	5	10	.....	10
BS (Ag Ed)	33	.....	33	26	.....	26
Master of Education (Ag Ed)	1	.....	1	1	.....	1
BS with high dist (Home Ec Ed)	4	.....	4	3	.....	3
BS with dist (Home Ec Ed)	10	.....	10	20	.....	20
BS (Home Ec Ed)	38	.....	38	52	.....	52
Master of Education (Home Ec Ed) .....	.....	.....	.....	1	.....	1

TABLE VI. (CONTINUED)

College and Degree	1968-1969			1969-1970		
	Men	Women	Total	Men	Women	Total
Agriculture, Forestry, and Home Economics, College of						
BS with high dist (Agriculture)	3		3	6		6
BS with dist (Agriculture)	8	2	10	18	3	21
BS (Agriculture)	122	1	123	121	3	124
BS with high dist (Forestry)	8		8	6		6
BS with dist (Forestry)	19		19	17		17
BS (Forestry)	68	1	69	66		66
BS with high dist (Home Economics)		2	2		8	8
BS with dist (Home Economics)		19	19		20	20
BS (Home Economics)		61	61	2	90	92
Biological Sciences, College of						
BS summa cum laude	2		2	4		4
BS magna cum laude	2	2	4	3	1	4
BS cum laude	1	2	3	1	1	2
BS	11	4	15	19	8	27
Business Administration, School of						
BBA with dist	1		1			
BBA	4	1	5	3		3
BS in Bus with high dist	5	1	6	11		11
BS in Bus with dist	32	2	34	36	3	39
BS in Bus	337	9	346	386	14	400
BS in Economics	5		5	5		5
Dentistry, School of						
BS with high dist	5		5	3		3
BS with dist	11		11	18		18
BS	50		50	60		60
Doctor of Dental Surgery	95	2	97	101		101
Graduate Dental Hygienist		43	43	1	52	53
Education, College of						
BS with high dist	11	37	48	11	54	65
BS with dist	45	192	237	57	212	269
BS	217	662	879	226	635	861
Master of Education	38	22	60	37	11	48
General College						
Associate in Arts	452	138	590	338	169	507
Institute of Technology						
Bach of Aero Eng with high dist	6		6	5		5
Bach of Aero Eng with dist	11		11	11	1	12
Bach of Aero Eng	71		71	39	1	40
Bach of Agric Eng with dist	4		4			
Bach of Agricultural Eng	8		8	12		12
Bach of Arch with high dist				4	1	5
Bach of Arch with dist	5		5	1		1
Bach of Arch	45		45	32		32
Bach of Chem Eng with high dist	2		2	4		4
Bach of Chem Eng with dist	8		8	14		14
Bach of Chem Eng	33		33	32		32
Bach of Chemistry with high dist	3	1	4	1	1	2
Bach of Chemistry with dist	8		8	7		7
Bach of Chemistry	16	2	18	23		23
Bach of Civil Eng with high dist	2		2	3		3
Bach of Civil Eng with dist	11		11	9		9
Bach of Civil Eng	42		42	68		68
Bach of Elect Eng with high dist	14		14	11		11
Bach of Elect Eng with dist	29		29	27	1	28
Bach of Elect Eng	122		122	89		89
Bach of Geo-Eng with high dist				1		1
Bach of Geo-Eng	3		3	3		3
Bach of Landscape Arch				1		1
Bach of Math with high dist	5		5	4	1	5
Bach of Math with dist	6		6	9		9
Bach of Math	23	1	24	21	4	25
Bach of Mech Eng with high dist	5		5	3		3
Bach of Mech Eng with dist	22		22	18		18
Bach of Mech Eng	105		105	100	1	101
Bach of Metallurgical Eng with dist	1		1	1		1
Bach of Metallurgical Eng	10		10	5		5
Bach of Mineral Eng	1		1			
Bach of Physics with high dist	13		13	6		6
Bach of Physics with dist	14		14	7		7
Bach of Physics	17		17	21	2	23
BS in Geology with high dist				1		1

TABLE VI. (CONTINUED)

College and Degree	1968-1969			1969-1970		
	Men	Women	Total	Men	Women	Total
BS in Geology with dist				1		1
BS in Geology	2		2	1		1
BS in Geophysics	2		2	1		1
BS	1		1			
Law School						
Juris Doctor summa cum laude				1		1
Juris Doctor magna cum laude	11		11	7		7
Juris Doctor cum laude	22		22	20		20
Juris Doctor	129	4	133	108	11	119
Master of Law	1		1			
Liberal Arts, College of						
Associate in Liberal Arts	31	37	68	19	32	51
BA summa cum laude	34	28	62	51	41	92
BA magna cum laude	35	41	76	49	38	87
BA cum laude	32	32	64	51	37	88
BA	1,132	733	1,865	1,325	879	2,204
Bach of Fine Arts magna cum laude				1	1	2
Bach of Fine Arts cum laude				3	2	5
Bach of Fine Arts	3		3	9	10	19
Medical Sciences, College of						
BS with high dist (Med Tech)					5	5
BS with dist (Med Tech)		10	10		18	18
BS (Med Tech)	3	42	45	1	38	39
BS Medicine	80	7	87	45	3	48
BS with high dist (Mortuary Science)		1	1	1		1
BS with dist (Mortuary Science)	2	1	3	8		8
BS (Mortuary Science)	21	1	22	19	1	20
BS in Nursing with high dist		16	16		10	10
BS in Nursing with dist		17	17		29	29
BS in Nursing		63	63		53	53
BS with high dist (Occup Therapy)		1	1		2	2
BS with dist (Occup Therapy)		6	6		7	7
BS (Occup Therapy)	1	8	9		13	13
BS with high dist (Physical Therapy)		5	5		3	3
BS with dist (Physical Therapy)		15	15	1	8	9
BS (Physical Therapy)	3	22	25	10	19	29
Doctor of Medicine	156	5	161	171	8	179
Master of Hospital Administration	30	3	33	30	3	33
Master of Public Health	35	11	46	32	15	47
Mortuary Science, Department of						
Associate in Mortuary Science	18		18	15	1	16
Pharmacy, College of						
BS in Pharmacy with high dist	1	2	3	1		1
BS in Pharmacy with dist	46	3	49	8	3	11
BS in Pharmacy	55	11	66	53	11	64
University College						
BA cum laude		1	1		2	2
BA	3	10	13	7	10	17
BS cum laude	7	3	10			
BS with high dist				1	1	2
BS with dist				2	1	3
BS				20	8	28
Veterinary Medicine, College of						
BS with high dist	1		1	2	1	3
BS with dist	12	2	14	11	2	13
BS	32	2	34	26	1	27
Doctor of Veterinary Medicine	56	1	57	52	6	58
Graduate School						
Master of Architecture	13		13	6		6
Master of Arts	435	300	735	358	374	732
Master of Arts in Public Admin	37	2	39	22	12	34
Master of Bus Admin	42	1	43	42		42
Master of Fine Arts	11	8	19	6	8	14
Master of Forestry	2		2			
Master of Science	170	65	235	141	70	211
Master of Science in Aeronautical Eng	11		11			
Master of Science in Aerospace Eng				9		9
Master of Science in Agric Eng	4		4	3		3
MS in Anesthesiology	1		1	3	1	4
MS in Chemical Eng	7		7	6		6
MS in Civil Eng	25		25	13		13

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TABLE VI. (CONTINUED)

College and Degree	1968-1969			1969-1970		
	Men	Women	Total	Men	Women	Total
MS in Dentistry	17		17	22	2	24
MS in Dermatology	3		3	3		3
MS in Electrical Eng	53		53	46	3	49
MS in Industrial Eng	13		13	16		16
MS in Mechanical Eng	19		19	24		24
MS in Medicine	4		4	6		6
MS in Met Eng	11		11	7		7
MS in Mineral Eng	2		2	4		4
MS in Neurology	1		1	1		1
MS in Obstetrics and Gynecology	4		4			
MS in Orthopedic Surgery	3		3	4		4
MS in Otolaryngology				2		2
MS in Pathology				3		3
MS in Physical Medicine and Rehab					1	1
MS in Physical Therapy				1	1	2
MS in Proctology	1		1			
MS in Radiology	1		1	3		3
MS in Surgery	1		1	4		4
MS in Urology				2		2
Master of Social Work	16	41	57	11	35	46
Doctor of Education	5		5	9		9
Doctor of Philosophy	421	54	475	469	61	530
PhD in Medicine	3		3	2		2
PhD in Orthopedic Surgery				1		1
PhD in Surgery	1		1	4		4
Crookston						
Associate in Ag with high dist	6		6			
Associate in Ag with dist	9		9			
Associate in Ag	33		33			
Associate in Bus with high dist	2	2	2			
Associate in Bus with dist		2	2			
Associate in Bus	13	14	27			
Associate in Food Service Management		2	2			
Associate in Applied Science with high dist				11	3	14
Associate in Applied Science with dist				20	1	21
Associate in Applied Science				50	8	58
Duluth						
Associate in Arts	4	1	5	3	4	7
BA summa cum laude	9	1	10	6	8	14
BA magna cum laude	13	5	18	7	4	11
BA cum laude	32	21	53	28	12	40
BA	294	64	358	303	79	382
BS summa cum laude	2	4	6	2	6	8
BS magna cum laude	2	10	12	1	12	13
BS cum laude	13	59	72	6	58	64
BS	163	207	370	176	190	366
Morris						
BA with high distinction	8	8	16	3	6	9
BA with distinction	17	19	36	15	32	47
BA	80	34	114	102	52	154
BS with high distinction		1	1			
BS with distinction					2	2
BS		15	15		19	19
Total	6,274	3,343	9,617	6,356	3,770	10,126
Honorary Degrees				1		1
GRAND TOTAL	6,274	3,343	9,617	6,357	3,770	10,127

TABLE VII. CERTIFICATES CONFERRED, 1968-1970

School, Division, or Course	1968-1969			1969-1970		
	Men	Women	Total	Men	Women	Total
Agriculture, Forestry, and Home Economics						
Technical Certificate in Agriculture	2		2			
Extension						
Accounting Certificate						
Junior	2		2			
Senior	1		1			
Assessment and Appraisal Certificate (Jr.)	4		4			
Associate in Management of Administrative Services Certificate	2		2	1		1
Business Administration Certificate						
Junior	2	1	3	10		10
Senior	2		2	9		9
Civil Engineering Technician Certificate (Sr.)		1	1	1		1
Electrical Engineering Technician Certificate (Sr.)				4		4
Engineering Certificate in						
Basic Engineering Science (Jr.)	21		21	18		18
Engineering Mathematics and Science Certificate (Jr.)	1		1	6		6
Engineering Science Certificate (Sr.)	1		1	1		1
Fellow in Management of Administrative Services Certificate (Sr.)				1		1
Industrial Relations Certificate (Jr.)	2		2	7		7
Interior Design Certificate (Jr.)		14	14	1	18	19
Liberal Arts Certificate (Jr.)	12	6	18	13	5	18
Management of Administrative Services Certificate (Jr.)	1		1			
Mechanical Engineering Technician Certificate (Sr.)	1		1			
Police Administration Certificate	2		2	8	2	10
Public Administration Certificate (Jr.)	3		3	8		8
Social Work Certificate	3		3	17	4	21
General College						
Certificate of Dental Assistant		31	31		14	14
Graduate						
Certificate of Specialist in Education						
Distributive Education				1		1
Educational Administration	6		6	10	1	11
Educational Curriculum and Instruction	2		2			
Educational Psychology	4	5	9	8	6	14
Library Science Teaching		1	1			
Special Education	2		2	2		2
Institute of Technology						
Certificate in Science	2		2	4		4
North Central School of Agriculture, Grand Rapids						
Forestry Technician Certificate	20		20	24		24
Southern School of Agriculture, Waseca						
Diploma	38	25	63	28	16	44
University High School, Minneapolis						
Diploma	30	30	60	6	11	17
TOTAL	166	114	280	188	77	265

TABLE VIII. STUDENTS ENTERED FROM HIGH SCHOOLS
1968-1969

	Ag., For., & H.E.	Dental Hygiene	Education	Inst. of Tech.	Liberal Arts	General College	Duluth	Morris	Crookston	Total
Minneapolis Public Schools	45	10	71	728	307	21	10	2	1,194	
St. Paul Public Schools	36	2	21	314	147	16	7	543		
Other Minnesota High Schools	383	13	34	462	2,604	679	1,253	405	203	6,036
Minnesota Private Schools	31	1	2	52	827	236	133	23	21	1,326
Total	495	14	48	606	4,473	1,369	1,423	445	226	9,099
Other States and Territories	19	3	4	29	193	86	48	4	9	395
Foreign Countries	1	.....	.....	15	14	2	14	2	.....	48
Total	515	17	52	650	4,680	1,457	1,485	451	235	9,542
Special Students	1	.....	.....	1	35	82	30	7	11	167
GRAND TOTAL	518	17	52	651	4,715	1,539	1,515	458	246	9,709

1969-1970

Minneapolis Public Schools	47	1	9	92	616	298	17	7	4	1,091
St. Paul Public Schools	40	1	5	46	241	127	16	8	.....	484
Other Minnesota High Schools	399	17	32	534	2,482	650	1,224	479	199	6,016
Minnesota Private Schools	38	3	6	79	653	225	108	27	16	1,155
Total	524	22	52	751	3,992	1,300	1,365	521	219	8,746
Other States and Territories	16	1	4	33	178	83	36	6	15	372
Foreign Countries	2	.....	.....	20	26	6	17	2	1	74
Total	542	23	56	804	4,196	1,389	1,418	529	235	9,192
Special Students .....	.....	.....	.....	.....	.....	2	1	1	4	8
Missing Information	45	.....	2	19	127	196	90	6	16	501
GRAND TOTAL	587	23	58	823	4,323	1,587	1,509	536	255	9,701

TABLE IX. STUDENTS ENTERED WITH ADVANCED STANDING
1968-1969

	Ag., For., & H.E.	Business	Vet. Med.	Dentistry	Dental Hygiene	Education	Inst. of Tech.	Grad. & Mayo	Law	Bio. Sci.	Medicine	Med. Tech.	Nursing	Pharmacy	Liberal Arts	Univ. College	General College	Public Health	Phys. Therapy	Duluth	Morris	Crookston	Total
Institutions in Minnesota	183	48	11	38	17	159	173	176	36	9	48	3	16	21	1,008	1	60	1	10	259	37	6	2,320
Institutions in Other States and Territories	73	10	17	16	2	96	84	973	63	7	27	.....	6	9	498	..	26	27	7	51	16	5	2,013
Institutions in Foreign Countries	2	1	1	.....	.....	1	8	382	.....	1	.....	.....	1	1	15	..	.....	.....	.....	2	.....	.....	415
Total	258	59	29	54	19	256	265	1,531	99	17	75	3	23	31	1,521	1	86	28	17	312	53	11	4,748
Special Students	92	50	1	.....	.....	223	70	74	2	8	6	8	.....	4	360	..	46	21	.....	51	18	8	1,042
Missing Information .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	..	.....	.....	.....	1	.....	.....	1
GRAND TOTAL	350	109	30	54	19	479	335	1,605	101	25	81	11	23	35	1,881	1	132	49	17	364	71	19	5,791

1969-1970

Institutions in Minnesota	199	65	16	38	6	184	168	199	62	15	32	3	11	32	886	1	55	3	14	208	31	2	2,230
Institutions in Other States and Territories	75	17	18	9	3	79	115	840	85	14	20	4	7	10	532	..	27	28	4	57	14	2	1,958
Institutions in Foreign Countries	4	1	.....	.....	.....	3	9	334	.....	.....	.....	.....	.....	.....	10	..	1	.....	.....	.....	.....	.....	362
Total	278	83	34	47	9	266	292	1,373	147	29	52	7	18	42	1,428	1	83	29	18	265	45	4	4,550
Special Students	50	32	1	.....	.....	251	66	67	.....	11	2	7	.....	.....	242	..	16	15	.....	12	8	7	787
Missing Information	89	11	23	2	.....	68	56	142	8	9	22	1	5	.....	160	2	17	4	1	64	49	17	750
GRAND TOTAL	417	126	58	49	9	585	414	1,582	155	49	76	15	23	42	1,830	3	116	48	19	341	102	28	6,087

TABLE X. GEOGRAPHIC DISTRIBUTION OF STUDENTS OF COLLEGIATE GRADE
(OTHER THAN SUMMER SESSION)

1968-1969

	Ag., For., & H.E.	Business	Vet. Med.	Dentistry	Dental Hygiene	Education	Inst. of Tech.	Grad. & Mayo	Law	Bio. Sci.	Medicine	Med. Tech.	Nursing	Pharmacy	Liberal Arts	Univ. College	General College	Public Health	Phys. Therapy	Occup. Therapy	Duluth	Morris	Crookston	Total
Counties in Minnesota																								
Hennepin	724	532	38	110	33	1,866	1,199	2,028	171	38	193	45	75	68	9,302	36	2,590	24	30	15	284	80	20	19,501
Ramsey	374	178	16	48	19	684	534	1,021	76	22	107	25	47	31	3,793	9	1,014	9	9	10	138	43	11	8,218
Other	1,635	395	125	206	43	1,125	1,491	2,057	184	50	294	68	140	193	5,373	21	521	29	60	14	4,888	1,222	409	20,543
Total	2,733	1,105	179	364	95	3,675	3,224	5,106	431	110	594	138	262	292	18,468	66	4,125	62	99	39	5,310	1,345	440	48,262
Other States, Territories	124	32	58	50	11	166	213	3,271	105	6	77	4	30	15	690	5	67	90	13	4	108	11	14	5,164
Foreign Countries	54	9	4	1	.....	11	87	1,314	1	2	8	3	4	1	79	.....	6	18	.....	.....	39	5	3	1,649
GRAND TOTAL	2,911	1,146	241	415	106	3,852	3,524	9,691	537	118	679	145	296	308	19,237	71	4,198	170	112	43	5,457	1,361	457	55,075

1969-1970

	Ag., For., & H.E.	Business	Vet. Med.	Dentistry	Dental Hygiene	Education	Inst. of Tech.	Grad. & Mayo	Law	Bio. Sci.	Medicine	Med. Tech.	Nursing	Pharmacy	Liberal Arts	Univ. College	General College	Public Health	Phys. Therapy	Occup. Therapy	Duluth	Morris	Crookston	Total
Counties in Minnesota																								
Hennepin	743	550	39	118	46	1,824	1,276	2,003	167	54	196	40	70	58	8,849	66	2,280	24	28	21	330	105	15	18,902
Ramsey	432	186	17	46	16	746	643	1,117	79	27	105	23	31	27	3,802	22	1,042	11	10	9	143	75	6	8,615
Other	1,607	372	120	213	51	1,176	1,563	1,993	204	70	295	64	121	192	5,340	25	487	23	66	19	4,775	1,341	414	20,531
Total	2,782	1,108	176	377	113	3,746	3,482	5,113	450	151	596	127	222	277	17,991	113	3,809	58	104	49	5,248	1,521	435	48,048
Other States, Territories	100	37	58	38	9	176	205	3,176	128	15	71	7	20	14	709	5	65	101	12	4	106	18	20	5,094
Foreign Countries	37	8	2	1	.....	15	125	1,385	1	8	4	3	4	.....	95	.....	5	14	.....	.....	43	8	2	1,760
Missing Information	158	19	1	7	2	116	59	307	7	17	30	6	4	1	232	3	87	9	1	2	166	22	23	1,279
GRAND TOTAL	3,077	1,172	237	423	124	4,053	3,871	9,981	586	191	701	143	250	292	19,027	121	3,966	182	117	55	5,563	1,569	480	56,181

OFFICE OF THE FOREIGN STUDENT ADVISER

Forrest Moore, *Director*

The civil war in Nigeria, tensions in the Middle East, intensified East-West conflict, and declining interest in the United States in foreign student programs placed special strains on the staff of this Office and on foreign students during the biennium. A new position was created in the Office for programming of American-foreign student relations, exchange programs, and the self-sponsored and other orientation programs.

There were 1,956 students from 93 foreign countries enrolled at the University during 1968-1969 and 1,988 students from 86 countries during 1969-1970.

The English Language Program became part of an instructional program in the teaching of English as a second language during 1969. Supplemental English language instruction was provided to 152 students in 1968-1969 and to 149 students in 1969-1970.

A new and significant program was begun in summer 1969 and was offered again in summer 1970. The Intensified English Language Institute provides, over a seven-week period, intensified training in English and a general orientation to the University and the United States. The Institute, which was made possible by a grant to the University by the Institute of International Education, was attended by 33 students in 1969.

The student exchange program continued with the Free University of Berlin; Osmania University in Hyderabad, India; the University of Singapore; the University of Ibadan, Nigeria; and the University of the Republic, Montevideo, Uruguay. A new exchange program was negotiated with Oslo, Norway. These programs have been made possible by grants from the Minneapolis Foundation, the Tozer Foundation, the Minnesota Student Association, the Dawson Fund, and the Jacobson Fund. A total of 49 Minnesota students competed for these scholarships in 1968 and 59 in 1969.

The Self-Sponsored Orientation Program, operated in conjunction with the Minnesota Orientation Center, enrolled 42 students during summer 1968 and 40 students during summer 1969. The Program was made possible by a grant from the Institute of International Education and the support of the Minnesota International Center, which provides hospitality to students during the program.

Several new programs were initiated or sponsored with other agencies and organizations. Acting for International Rapport (AIR) is a student program designed to bring together American and foreign students. Cross-Cultural Workshops, pioneered by this Office, are especially popular with students majoring in international relations and cross-cultural communications. In addition, Leadership Seminars and training programs were developed by the International Student Council.

During 1968, 100 Tuition Scholarships were given to 181 foreign students. During 1969, only 86 such scholarships were available on a quarterly basis; they were granted to 155 students. Sixteen of the original 100 were shared with the coordinate campuses.

UNIVERSITY HEALTH SERVICE

Donald W. Cowan, *Director*

The health of students on the Twin Cities campus was relatively good during the biennium, and there were no epidemics of serious degree. A predicted possible outbreak of epidemic influenza during fall and winter 1968-1969 led to development of preliminary plans for this eventuality. However, the need for greatly increased numbers of hospital beds did not materialize, largely because a three-week Christmas vacation intervened shortly after the case load started to increase.

During the biennium a rather sharp increase in the incidence of venereal disease was observed among patients.

Four student deaths occurred during the biennium: one from cerebral hemorrhage, one from Hodgkins Disease, one from carcinoma of the mouth, and one from suicide.

Construction of a north addition to the Health Service building and extensive remodeling in the older sections were completed in fall 1968. The remodeled and enlarged general outpatient clinic area became operable during fall quarter 1968, the greatly enlarged pharmacy opened on December 8, and the remodeled special diets department was reopened for the beginning of winter quarter. Almost immediately after these projects were completed, detailed planning was renewed for remodeling of the St. Paul campus Health Service building and development of a fifth-floor bed addition to the Minneapolis campus Health Service.

A "no smoking" policy for the Health Service building initiated in January 1969 met with surprising success and has led to no difficulties up to the time of this writing.

During the biennium, plans were made to offer students continuing health care coverage during vacations and other brief periods of interrupted college work. This program, which first became available at the beginning of the 1970 summer sessions, is optional, prepaid, and offered at a rate proportionate to the regular Health Service fee. The plan was discussed with and approved by the Hennepin and Ramsey County Medical Societies before being offered to the students. A somewhat similar plan had been offered on a trial basis to teaching assistants to cover the previous summer period.

Outpatient Medical Care—During the biennium, 251,390 visits for medical attention were made to physicians in the Health Service outpatient departments, compared to 234,771 visits during the previous biennium. The total includes eye refractions, attention by specialists, and care in the general outpatient department, but not services rendered by the dental department, the clinical laboratory, the x-ray department, and the pharmacy. Table IV shows that all of the latter services also increased in number during the biennium.

Hospital Care—During 1968-1970, 2,755 students were hospitalized for medical and surgical conditions, a decrease from the 2,924 hospitalized during 1966-1968. The average stay also decreased from 4.2 days in 1966-1968 to 3.8 days in 1968-1970. Psychiatric hospitalization showed a slight increase, from 120 cases in 1966-1968 to 126 in 1968-1970. As in the past, many of the psychiatric cases had to be admitted, under Health Service auspices, to outside hospitals for care because of the limited availability of psychiatric beds in University Hospitals.

Specialized Services—The number of specialist services rendered increased during the biennium except for chest consultations, which decreased by 33.7 percent, and eye refractions, which decreased by 5.9 percent. The rate of increase for the other specialties varied from 4.5 percent for allergy consultations to 30.1 percent for gynecology consultations and 55.4 percent for eye consultations other than refractions.

Supplemental Insurance Plan—The option to enroll for the Blue Cross-Blue Shield Supplemental Health Care Plan was exercised by virtually all students who had need for it. The plan covers a student for emergency care when he is away from campus during the school year, for hospitalization during the summer months, and for surgical benefits all year. Although many students have outside insurance that includes much the same coverage, 9,170 students purchased the Blue Cross-Blue Shield Supplemental Plan during the biennium, compared to 8,869 during the previous biennium.

Mental Hygiene Outpatient Department—During the biennium 2,143 new patients were seen in the mental health clinic, compared to 1,618 during the previous biennium. In addition, 931 cases were carried over from previous years, bringing the total to 3,074. Interview sessions numbered 12,048 and 4,839 group therapy hours were provided. Psychological tests (Minnesota Multiphasic Personality Inventory and Shipley-Hartford) were administered and interpreted for 1,508 patients. Individual interviews during the biennium increased slightly more than 30 percent over those of the previous biennium. Almost half (46.9 percent) of the patients seen in the mental health outpatient department were self-referred, about one fifth (19.9 percent) were referred by Health Service physicians, and the remainder were referred by other sources.

The work of certain personnel in the mental health section of the general outpatient clinic was expanded during the biennium, with two psychiatric social workers devoting almost full time to serving students. They maintained a walk-in clinic to which students in crisis could come for immediate help without previous appointment. Liaison with and easy referral by general staff physicians continued to prove helpful in this arrangement.

There was also a notable increase in the training function of mental health staff members. This was reflected in the increased numbers of psychiatric residents, clinical psychologists, and psychiatric social workers who saw increasingly larger numbers of patients, under supervision of the Health Service staff.

Tuberculosis Control—The tuberculosis case-finding program was continued as an important routine part of the preventive medical work of the Health Service. Each new student, faculty member, and Civil Service employee is required to have a tuberculin test and/or chest x ray. Persons 35 years of age or older are given a chest x ray regardless of the results of the Mantoux test. All persons seen at the University Health Service who convert to a positive Mantoux test and all known recent converters are immediately referred to the chest clinic for follow-up care and treatment. Although there are few active cases of tuberculosis discovered each biennium, all contacts of known cases are carefully followed up until danger of infection is over. Contacts who are no longer on campus may return to the Health Service or see their family physician for follow-up care.

During the biennium, 46,095 chest x rays were taken and read in the X-Ray Department, and 529 individuals were listed on the chest clinic register for some kind of follow-up supervision. Of the latter number, 108 were foreign students. Only four newly diagnosed cases of active tuberculosis were verified during the biennium.

Public Health Nursing—The public health nurse continued responsibilities for the chest registry, emergency-receiving reports, progress reports on hospitalized Health Service patients, accident and communicable disease reports, prenatal care conferences, counseling and referral of unwed mothers-to-be, venereal disease consultation, and the food service workers' annual examination program, and participated in a research project related to the incidence of certain infectious diseases.

Dietary Service and Special Diets Department—As in the past, students needing modified diets were referred by Health Service physicians to the dietitian. During the biennium, 1,406 such students were counseled in 3,363 interviews, a modest increase over the number counseled during the last biennium. The special diets department, which makes food service available to persons on modified diets, served 7,440 meals to 193 students during the biennium. This service was not offered in fall quarter 1968 because of the remodeling program.

Health Care of Special Groups on Campus—Formal arrangement was again made for the health care of groups of persons on campus to attend short courses, workshops, and institutes. More than 11,000 individuals were under this plan at some time during the biennium.

Health Education—The services of the health educator are available to assist in use of the educational opportunities inherent in Health Service activities. In addition to working with staff, the health educator works with student groups, residence hall counselors, and orientation student leaders to make students aware of health services available. Through the Social Service Council, he assisted student groups in conducting campus-wide health education projects during the biennium. He also assists individuals and groups with class projects and with location of health information sources and serves as a consultant on campus health problems. A longitudinal study concerning the nonmedical use of drugs among students was continued during the biennium. Systematic 33.3 percent samples of the 1968-1969 sophomore class and the 1969-1970 junior class were studied to determine the incidence of nonmedical drug use. A pilot in-service training project on nonmedical drug use was planned and carried out for residence hall counselors in cooperation with the Student Housing Bureau and the College of Pharmacy during spring quarter 1970.

Faculty Preemployment and Promotion Examinations—During the biennium, 535 medical examinations were given to newly appointed faculty members and to those promoted to positions implying tenure, compared to 617 such examinations during the previous biennium.

Civil Service Examinations—During the biennium, 1,385 preemployment medical examinations and 3,347 medical clearance examinations were given to Civil Service applicants. These figures compare with 1,711 complete examinations and 2,421 medical clearance examinations for the previous biennium.

Environmental Health and Safety—Under the provisions of the Environmental Health and Safety Code adopted by the Board of Regents, the Health Service serves in an advisory capacity in matters relating to health and safety at the University. A staff of 13 professional persons, consisting of engineers, health physicists, and sanitarians, is employed in this area of responsibility, with good support from a number of University departments.

The routine surveillance of health and safety matters in residence halls, married student units, fraternity and sorority houses, and off-campus housing continued to be an important part of the program. The requirement that students live in University-approved units was lifted during the latter part of the biennium, resulting in a sharp decrease in the number of requests for off-campus inspections. Approximately 1,000 inspections were made during the biennium.

The concern of the public and of University students and staff with the quality of the environment resulted in an increase in requests for evaluation of potentially hazardous environmental conditions. Also evident during the biennium was an increased concern by students and staff that the University take a position of leadership in providing a quality environment.

Considerable time was spent in development of a satisfactory system for collection, transportation, and ultimate disposal of chemical and biological wastes. The increasing amounts of such waste and the increasingly stringent requirements of the Minnesota Pollution Control Agency make it imperative that these problems be solved in the near future.

The safety and occupational health engineering programs received an increasing number of requests for assistance in evaluating physical, chemical, and biological health and safety hazards. Reports on employee and student accident experiences for 1967-1968 and 1968-1969 were distributed and were used as a basis for departmental programs in accident prevention.

During the biennium members of the staff have been actively involved in the teaching and research program of the School of Public Health.

Research—Portions of the longitudinal study on nonmedical drug use among University students were completed and the results published during the biennium. The study revealed that the use of such drugs as marijuana, LSD, and amphetamines by University students is becoming increasingly common. Of the entering students in fall 1967, 7.9 percent of those surveyed were currently using or had used one or more of these drugs. Comparable figures for the sophomores during 1968-1969 and the juniors during 1969-1970 were 23.6 percent and 32.1 percent, respectively. A study of the incidence of nonmedical drug use among the senior class of 1970-1971 and a survey of the fall 1970 freshman class will be carried out in the next biennium to bring the study to a conclusion.

The Health Service participated in a study of reactions to anti-rabies pre-exposure prophylaxis under the direction of the Center for Disease Control of the Department of Health, Education, and Welfare. Several projects relating to laminar air flow were continued and two of them reached completion. These projects, conducted under grants from the U.S. Public Health Service, yielded practical results in the field of environmental control. The Health Service also continued to participate in a U.S. Public Health Service study on the incidence of infectious mononucleosis and some other infectious diseases.

TABLE I. COMPLETE MEDICAL EXAMINATIONS GIVEN OR REVIEWED (MINNEAPOLIS AND ST. PAUL)

Year	Entrance Performed	Entrance Reviewed*	Periodic Performed
1960-1961	9,689	...	4,204
1961-1962	10,922	...	4,511
1962-1963	10,893	...	4,824
1963-1964	307	10,760	4,587
1964-1965	343	15,377	4,812
1965-1966	393	13,415	5,316
1966-1967	283	12,558	5,607
1967-1968	262	13,476	5,818
1968-1969	364	10,372	5,721
1969-1970	389	11,303	5,668

* Beginning in fall 1963, entrance physical examinations, except for foreign students, were performed by private physicians. These examinations were reviewed and processed by Health Service physicians.

TABLE II. VISITS TO THE HEALTH SERVICE (MINNEAPOLIS AND ST. PAUL) FOR MEDICAL ATTENTION BY PHYSICIANS

Year	Number of Visits*			Visits to Mental Health Department**	Total Visits to Physicians	Average Visits per Student
	Mpls.	St. Paul	Total			
1960-1961	71,331	2,499	73,830	3,489	76,126	3.32
1961-1962	77,568	2,696	80,264	4,335	83,104	3.32
1962-1963	80,622	4,398	85,020	4,641	87,655	3.31
1963-1964	85,344	2,561	87,905	5,148	91,103	3.29
1964-1965	86,855	2,672	89,527	4,974	92,484	3.03
1965-1966	101,744	2,446	104,190	5,929	107,860	3.24
1966-1967	107,940	2,366	110,306	7,276	115,073	3.33
1967-1968	111,107	2,893	114,000	8,473	119,698	3.31
1968-1969	112,576	2,963	115,539	9,479	121,306	3.29
1969-1970	120,290	3,646	123,936	10,927	130,084	3.55

* Includes general medical outpatient visits, specialty appointments exclusive of mental health, and Emergency Receiving visits.

** Includes visits to psychiatrists, psychiatric social workers, and clinical psychologists.

TABLE III. STUDENT HOSPITAL CARE (MINNEAPOLIS AND ST. PAUL)

Year	Number of Patients			Rate per 1,000 Students (Academic Year)	Number of Hospital Days			Average Stay in Days
	Mpls.	St. Paul	Total		Mpls.	St. Paul	Total	
1960-1961	1,278	26	1,304	56.8	4,843	73	4,916	3.8
1961-1962	1,395	32	1,427	57.2	5,764	97	5,861	4.1
1962-1963	1,419	60	1,479	55.9	5,721	189	5,910	4.0
1963-1964	1,419	27	1,446	52.5	5,386	93	5,479	3.8
1964-1965	1,492	41	1,533	50.2	6,060	125	6,185	4.0
1965-1966	1,422	29	1,451	44.2	5,993	105	6,098	4.2
1966-1967	1,534	6	1,540	44.5	6,559	11	6,570	4.3
1967-1968	1,372	12	1,384	38.4	5,776	49	5,825	4.2
1968-1969	1,362	7	1,369	37.1	5,314	33	5,347	3.9
1969-1970	1,378	8	1,386	37.8	5,084	28	5,112	3.7

TABLE IV. SELECTED SERVICES RENDERED (MINNEAPOLIS CAMPUS)

Year	Professional Dental Services	Lab. Procedures including B.M.R., E.C.G.	X Rays, excluding Dental	Prescriptions Filled
1962-1963	22,032	79,884	11,027	40,511
1963-1964	23,467	69,788	12,037	40,241
1964-1965	22,861	74,085	12,440	43,096
1965-1966	24,508	84,834	14,423	51,769
1966-1967	26,945	91,242	14,633	50,096
1967-1968	25,652	93,231	15,399	51,054
1968-1969	29,249	88,226	18,503	54,573
1969-1970	29,039	107,310	22,489	60,208

DEPARTMENT OF THE MINNESOTA UNION

Donald R. Zander, *Director*

The change in departmental title from University Student Unions to Minnesota Union reflects the assertion of common membership of all Twin Cities campus students, faculty, staff, and alumni in a single organization and the replacement of the advisory committee by a coordinating board, which grew from the Union Study Committee report of January 1966. The Regents approved the constitution for the Minnesota Union and its coordinating board on September 12, 1969.

The coordinating board is composed of representatives from each of the three constituent boards (the Coffman Union, St. Paul Student Center, and West Bank Union Boards of Governors), the Minnesota Student Association, and the St. Paul Student Council; three students elected at large; an alumnus named by the Alumni Association Board; one staff member appointed by the vice president for student affairs and one by the director of University Services; the directors of the constituent unions; and the director of the Minnesota Union, who serves as executive secretary. The coordinating board reviews and approves the annual operations and programs budgets of each of the constituent boards and determines allocation of the student services fees collected for support of the unions and center. It has also reviewed and approved changes in the constitutions and by-laws of constituent boards prior to their submission to the Twin Cities Assembly Committee on Student Affairs.

A request for an increase in the allocation of student services fees for the Minnesota Union, based on needed renovation of Coffman Memorial Union, construction of union facilities on the West Bank, and expansion of the St. Paul Student Center, was presented in spring 1969. An increase of \$1.50 per student to the Capital Expansion Fund was approved. The coordinating board authorized \$150,000 for the engagement of architects to develop an over-all plan for the renovation of Coffman Union.

When the director of the Minnesota Union was given the additional position of assistant vice president for student affairs in July 1969, added responsibilities were taken on by the directors of the constituent unions, with special reliance upon Edwin O. Siggelkow, director of Coffman Memorial Union.

In June 1969 the Minnesota Union staff, under Gordon L. Starr, director of planning, sponsored a summer course directed toward union-activities professionals in junior colleges. The course was sponsored in cooperation with the Association of College Unions-International and attracted 51 participants from 22 states and two from Canada.

Coffman Memorial Union—In November 1968, President Moos appointed a Coffman Memorial Union Planning Committee to develop recommendations for the renovation of the Union building. The Committee's report, submitted in June 1969, called for appointment of an architect to develop a renovation plan; reported establishment of a Committee of Occupants, composed of representatives of the students and staff, the Campus Club, and the Food Services, to insure cooperative and coordinated concern for maintenance and operation of the total

building; and recommended University financial participation in the ongoing operations of Coffman Union in recognition of its many services to faculty, staff, alumni, and other publics. In November 1969, the Planning Committee endorsed the creation of the Committee of Occupants, with the director of Coffman Memorial Union as its chairman; authorized the engagement of architects; and invited submission of concrete proposals by the Committee of Occupants for University financial participation.

The Food Services presented plans for the renovation of the Gopherette-Cafeteria area to the Planning Committee for approval, and these renovations were begun in March 1970. The Campus Club presented plans for conversion of the sixth-floor faculty sleeping quarters to dining and meeting space, and this work was completed in April 1970.

A traffic survey made in January 1969 logged 20,469 persons entering Coffman Memorial Union on Wednesday, January 29, and 17,738 on Thursday, January 30. This contrasts with the 11,547 recorded in January 1955 on a Monday. A User Survey in which questionnaires were given to every tenth person entering the Union on February 26, 1969, yielded a wealth of information about who uses the Union, services and amenities sought, and satisfactions and dissatisfactions.

Union Board of Governors programming declined in number of events and in attendance when contrasted with the previous biennium: 555 events in 1968-1970 compared to 762 in 1966-1968 and 121,533 participants compared to 181,361. Organizational problems that occupied the Board during the biennium and low carry-over of student leadership were contributing factors. Programs of high quality were presented, however, and the range of programming continued to be broad and varied. The accompanying chart shows patronage of Union-sponsored events and of programs conducted in Coffman Union under sponsorship of other University organizations and departments.

PROGRAM ATTENDANCE AT COFFMAN MEMORIAL UNION, 1968-1970

	1968-1969		1969-1970	
	Events	Attendance	Events	Attendance
Dances	18	10,357	28	21,617
Films	52	12,335	22	4,645
Plays, Concerts	28	7,882	30	8,635
Speakers, Discussions	53	8,462	29	12,330
Instruction, Workshops, Leagues	46	2,381	20	893
Banquets	8	250	1	170
Whole Coffeehouse	100	14,360	64	9,128
Other	53	7,188	3	900
Total	358	63,215	197	53,318
Gallery Exhibits	0	0	43	71,450
GRAND TOTAL	358	63,215	240	129,768

* Gallery exhibits were not tallied as programs in 1968-1969.

The most significant occurrence affecting Coffman Memorial Union during the biennium was the student strike in May 1970, protesting the Cambodian invasion. More than 6,000 students and faculty assembled on the plaza in front of the Union on May 4, a general strike was proclaimed, and the Union building was "liberated" to serve the needs of the strikers. The Union was occupied 24 hours a day for a month, until the number requiring the Union's facilities after normal closing had dwindled to a relative handful. The building was resecured on June 5, 1970. The nature of the strike activities were essentially in kind with what the Union was established to serve and has served regularly since its opening in 1941. The magnitude of activities and demands was substantially greater, however, and the Union staff was stretched substantially to cover the 24-hour-a-day operation. The Union Board of Governors assisted in constant evaluation of the status of the "occupation" and sought to minimize disruption to other users. By and large, the effects upon the Union were minimal when contrasted with activities at unions on other major university campuses. A chronological report

of the strike and its effects upon Coffman Memorial Union is available in the director's office.

West Bank Union—The 1968-1970 biennium coincided with the first two years of elected West Bank Union Boards. There was a great deal of student interest in serving on the Board: 21 people filed for the seven openings in 1970.

The Boards evolved objectives including direct involvement and support of student involvement in socio-political activity, encouragement of cultural awareness and exploration and of personal and interpersonal awareness, and support of innovative approaches to the acquisition of relevant knowledge. Programs supporting the objectives included Community-Action-Learning, consisting of individual- and group-planned experiences in the community; national and local speakers such as peace advocates, a South Vietnamese Embassy official, a welfare rights activist, and a women's rights activist; poetry readings; international cultural-geo-political area weeks; "See Train Hair"; and activities involved with the peace movement and the counter-movement. More than 50 programs, activities, and events were offered annually. In addition, the Boards provided services, facilities, and financial and personnel assistance for activities of other groups.

The potential problem of being political as an organization, taking action in support of a majority viewpoint while encouraging and supporting conflicting political viewpoints and actions, was managed effectively. For example, at a Board meeting in May 1970, action was taken to support strike activities, establish a day care center for strike workers' children, continue all programs scheduled for the common room, provide financial assistance to the Minnesota Majority (anti-strike coalition), allocate the limited office space among the "Strike," the Minnesota Majority, and regular operations, and guarantee compatible operation of these activities.

Problems remaining to be solved include development of processes by which greater numbers of students may be assisted in their individual or group interests, provision of facilities for groups, and provision of adequate communal space for interaction, eating, study, and relaxation. Plans to solve these problems are being developed. A building segment over Washington Avenue and space in several buildings to be constructed will allow a broader range of facilities and services to be offered. Plans are also in progress for more service and support outreach from the Board to individual students and groups.

A space use count conducted in January 1969 showed an average of 7,798 persons per day using West Bank communal space.

St. Paul Student Center—During the biennium, steps have been taken to satisfy needs of increasing enrollment by bringing the St. Paul Student Center to its planned potential. Staff additions were made, facilities were equipped to meet maximum capacities, and circulation areas were remodeled to add needed lounge space. Through these changes, seating was increased 25 percent in the eating areas and 33 percent in the lounge areas. However, daily use of the Center's facilities continues at maximum capacity.

Building Use—Ten years of heavy use has necessitated replacement of all original carpeting, reupholstering of all furniture, and replacement of tile floors in heavy traffic areas. Recent traffic estimates show that more than 1,466,000 persons enter the Center each year, a daily average of approximately 4,500. Actual head counts of Center traffic in January 1969 produced an average daily traffic count of 7,120.

For the past 16 years, use of the Center has increased by approximately 13 percent each year. The accompanying chart shows measurable building traffic in and organizational use of the Center during each year of the biennium. No attempt is made to represent casual use of such facilities as lounges and galleries.

The first- and second-floor areas of the Center, including lounges, snack bar, meeting rooms, offices, reception areas, and ballroom, are operating at peak capacity. The only area permitting additional growth is the games room. Even here, the bowling lanes are used to near-capacity four nights each week. Additional space is particularly needed for the TV lounge, for card playing, for coat and ball storage, and for more billiard tables.

Renovation undertaken during the biennium made use of student and faculty resources in the planning and execution of the redecorating work. With academic classes in home economics, related art and interior design, and horticultural

USE OF THE ST. PAUL STUDENT CENTER, 1968-1970

	1968-1969		1969-1970	
	Events	Attendance	Events	Attendance
Student Center-Sponsored Events	267	27,358	339	30,022
Other Events, Meetings, Programs	1,503	63,823	1,310	52,912
Total Organizational Use	1,770	91,181	1,649	82,934
Student Center Patronage				
Information Desk		147,290		196,841
Vending Machines		63,855		63,769
Billiards		30,117		23,793
Bowling		14,193		15,322
Table Tennis		3,078		1,982
Snack Bar		324,776		296,818
Snack Bar Vending Machines		169,553		180,852
Games Machines . . . . .		.....		21,683
Total Patronage		752,862		801,060
TOTAL MEASURABLE TRAFFIC		844,043		883,994

ture landscaping design and maintenance, the St. Paul campus is particularly well equipped to introduce such resources into its operations. In addition to being economically advantageous, this practice ensures reflection of the needs and interests of contemporary students in the appearance and functioning of the facilities.

During the biennium the Student Center-Dining Center-Bailey Hall Dormitory complex became the well-integrated living unit it was designed to be. Control of the common corridors and connecting tunnels was delegated to Student Center management, and hours of accessibility were coordinated to allow the entire complex to be used as a north-south campus passageway.

Programs—Allocation of a larger portion of student services fees to the Department of the Minnesota Union enabled the Student Center to develop a full-fledged art program that brings a variety of art forms to the St. Paul campus. During the biennium, 82 separate art exhibits were presented in the Student Center's three galleries. In 1969, the Center brought over \$100,000 worth of visual art shows to the campus.

Concern with civil rights and the Cambodian crisis were reflected in St. Paul campus programming through convocations, weekend conferences, debates, dramatic presentations, displays, and discussions that explored the issues and helped to involve and inform campus personnel. There was extensive cooperative effort by the Student Center Board, the administrative office of the Institute of Agriculture, and the St. Paul office of the Student Activities Bureau to provide information and to assist students in expression of their concerns. During a week-long "Festival of Life" program devoted to intensive discussion of environmental problems, pollution control, and conservation, more than 10,000 persons attended 66 convocations, seminars, debates, and discussions. The degree of involvement and the intensity of much of the discussion appeared to indicate that this campus was more concerned about this long-term problem than about the somewhat more immediate crises. The following table provides a quantitative measure of programming activity at the Student Center.

ST. PAUL STUDENT CENTER PROGRAMS, 1968-1970

	1968-1969		1969-1970	
	Events	Attendance	Events	Attendance
Cultural	104	9,102	102	6,524
Educational	48	7,364	66	10,087
Recreational	93	6,298	108	8,855
Social	22	4,594	63	4,556
TOTAL	267	27,358	339	30,022

STUDENT ACTIVITIES BUREAU

Ludwig J. Spolyar, *Director*

Compared with other campuses throughout the nation, the University of Minnesota resolved situations of student unrest and campus tensions with a minimum of damage and disruption, remaining open and providing freedom to assemble and express various points of view. Members of the Student Activities Bureau were heavily involved in the resolution of campus conflicts during the biennium.

In 1968-1969, 19 student organizations were established and two were disestablished, for a total of 414 at the end of the year. In 1969-1970, 23 organizations were established and nine disestablished, for a total of 428 at the end of the biennium.

The majority of student organizations and programs were similar to those of past years. Social service projects continued to raise funds for charity and provide student volunteers to community agencies. One effort, Campus Carnival, raised over \$30,000 for student scholarships. Programs of educational, intellectual, recreational, professional, and social importance continued to be sponsored.

As the result of a report by a task force appointed by President Moos, the University Senate was reorganized and students were included as voting members for the first time in the history of the University. Various departments, colleges, and institutes followed suit and included more students on their committees.

STUDENT COUNSELING BUREAU

Theda Hagenah, *Director*

An innovative outreach approach was initiated during the biennium through placement of counselors in various locations throughout the University, enabling Bureau staff to be more readily available to students and faculty members. This effort included consultation by a senior staff member with advisory staff in the CLA Lower Division office, addition of staff to the St. Paul campus Student Affairs office, strengthening of counseling-consulting-research activity in the Institute of Technology, and assignment of a counselor to Coffman Memorial Union. Efforts directed toward improvement of the student's learning environment and his relationships with faculty and staff were emphasized through increased consultation with faculty. A review of the needs of students and ways of meeting some of these needs led to plans for development of a group counseling program.

Participation by Bureau personnel in psychology and educational psychology programs for graduate students was strengthened during the biennium. Several members of the Bureau staff carried teaching responsibilities and served as advisers to graduate students. The Bureau's primary contribution continued to be the graduate practicum in counseling and the supervision of counseling, clinical, and educational psychology interns. Use of the interns in the Bureau enabled the Bureau to meet the counseling needs of students while freeing senior staff for more consultation and outreach.

Research conducted during the biennium was supported by grants from the Graduate School; the Department of Health, Education, and Welfare; Stanford Press; and the Department of Defense. Approximately 100 articles, monographs, and major papers resulted. Several staff members served as professional journal editors, and virtually every staff member was active in local, state, or national professional organizations.

Provision of consultation to faculty and staff reduced the number of individuals with whom the counselors worked directly. During the biennium, 6,653 persons were counseled, compared to 7,680 during the last biennium. The number of interviews increased from 15,034 in 1966-1968 to 16,164 in 1968-1970. The number of tests scored increased from 1,067,133 in 1966-1968 to 1,946,781 in 1968-1970, reflecting the development of a more inclusive service to high schools as well as service to University faculty.

In fall 1968, Arthur Smith resigned as director of the Bureau to take a position with a national testing program. In May 1969, Theda Hagenah became director. An advisory committee with members elected by the staff has been established to aid in communication and policy determination.

Currently, the Student Counseling Bureau is under heavy pressure to provide sharply increased consultative services to the college offices, to increase its service to staff and students on the West Bank and in the residence halls, and to provide reading and study skills assistance in the special programs for educationally disadvantaged groups. Present staff limitations will not allow the Bureau to meet these requests. The major frustration of the professional staff of the Bureau is that they are aware of ways in which their contributions to the student's education could be made more effective and yet are cognizant that only with additional staff can these steps be taken.

OFFICE OF STUDENT FINANCIAL AID

Pierre Meyer, *Director*

As of July 1, 1968, the College Work-Study Program and the Bureau of Student Loans and Scholarships were combined in the Office of Student Financial Aid to better coordinate the two financial aid programs dealing most directly with undergraduate students. In September 1968, the name change to Office of Student Financial Aid was approved. Another change affecting the Office was the major increase in programs for disadvantaged students and in federally sponsored Health Professions scholarships and loans.

In 1968-1969, total financial aid provided by the Office was \$5,949,981, a continuation of annual increases that began in 1954. In 1969-1970, the aid total was \$5,824,225, the first decrease recorded for aid administered by this Office. The decrease, related to cuts in federal support, necessitated a reduction in the number of students provided with aid and in the amount of aid available per student. The following chart shows the total amount of financial aid awarded in each biennium since 1954.

1954-1956 .. \$ 639,000	1960-1962 .. \$ 2,799,295	1966-1968 .. \$ 7,005,311
1956-1958 .. 1,331,215	1962-1964 .. 3,355,133	1968-1970 .. 11,744,206
1958-1960 .. 2,499,917	1964-1966 .. 5,564,321	

The Guaranteed Student Loan Program continued to develop. This program, in which commercial lenders make loans after certification of student eligibility by the University, was authorized by the Higher Education Act of 1965. Student participation in the Program can only be estimated, as no records of total loan volume are provided to the University. It is estimated that such loans totaled \$5,000,000 in 1968-1969 and \$8,000,000 in 1969-1970.

At the beginning of the 1968-1969 academic year, the Martin Luther King Scholarship Program began to provide support for University students. Funding for this Program increased from about \$150,000 in 1968-1969 to \$350,000 in 1969-1970. The Law Enforcement Education Program was also begun during the biennium. This Program, sponsored by the Department of Justice, provides scholarship and loan support to individuals who certify eventual employment in the fields of law enforcement and criminal justice.

In 1967-1968, when the Office of Student Financial Aid began to keep exact records of the number of racial minority students aided, 59 students were provided some financial support. In 1968-1969 the number increased to 241 and by 1969-1970 it had increased to 434.

The following table shows total financial aid provided through the Office in each year of the biennium.

	1968-1969		1969-1970		Total Amount
	Recipients	Amount	Recipients	Amount	
Work-Study					
Program	875	\$ 707,610	1,042	\$ 830,000	\$1,537,610
Loans	5,887	2,847,817	5,566	2,603,568	5,451,385
Grants and					
Scholarships	5,857	2,394,554	5,646	2,390,657	4,785,211
TOTAL		\$5,949,981		\$5,824,225	\$11,744,206

STUDENT HOUSING BUREAU

James Condie, *Director*

In October 1968, James Condie became director of the Student Housing Bureau and its Off-Campus Housing and Residence Counseling Programs. Soon thereafter, a study was made of the housing needs of students as expressed through the philosophy and objectives of the University.

Objectives identified through the study included provision of a philosophy for all housing staff emphasizing the need for out-of-class educational environments, revision of the reporting system to facilitate the gathering and sharing of information, discussion with residence hall and other housing staff of the need for information-sharing among managers and professionals, and provision of sufficient controlled freedom to Housing staff members to enable them to deal with cases on an individual basis. The concepts of operations and program needs and individual responsibility were adopted. Each staff member, process, and function was analyzed and modifications were made where necessary and appropriate.

Developments in the Off-Campus Housing Office included a 494 percent increase in listings during the biennium, from 1,065 in 1967-1968 to 5,265 in 1969-1970; a turnover in five staff positions as a result of changes in approach; elimination of two full-time-equivalent staff positions, one of which will be replaced by part-time student help; the opening of a West Bank Off-Campus Housing Office; the combining of student counselors and faculty representatives in the Off-Campus Housing Office; the establishment of a procedure to assist in relocation of individuals and businesses displaced as a result of University expansion; and the discontinuance of student apartment approval interviews and required University health inspections. In view of the need to generate housing, a practical, useful listing service was developed. Communication was begun with off-campus tenant unions and the Minnesota Apartment Association and cooperative efforts were begun to allow rental by students of residential properties purchased by the University. Cooperative efforts were also undertaken with the University's transportation and parking departments regarding planning and operations. The University's equal opportunity in housing policy was updated and regular contact was established with municipal and state human rights agencies.

Developments in the Residence Counseling Program included the combining of the University's Twin Cities campus housing operations into one office; the delineation of comprehensive roles and functions for resident advisers and head resident-directors; the establishment of a better resident adviser selection procedure; the employment of more behavioral science and fewer professional school students as resident advisers; the revision of the *Resident Advising Manual*; the establishment of an "Incident Report" form to be filled out at the house or hall level and forwarded to the Housing Office and other offices as necessary; and the implementation of a realistic, reasonable staff training program. In addition, living learning options were introduced for students in all types of residences, Inter-Hall Residence Association (IHRA) leadership retreats were initiated, and standing IHRA operational and program committees were established. A judicial structure was established permitting residence hall staff to respond to violation of regulations by giving residents verbal or written warnings, placing residents on hall probation, or dismissing them from the hall, subject to review by and appeal to officers with broader administrative responsibility.

During the biennium, Housing Bureau staff members served as advisers to student groups, assisted in planning and supervising regional and national convention operations and programs, and produced several position papers that were distributed by the Office of the Vice President for Student Affairs or the former Office of the Dean of Students.

*Addendum to Divisions of Finance, Planning, and Operations:***DEPARTMENT OF INSURANCE AND RETIREMENT**Ray F. Archer, *Director*

The following changes were made in programs administered by the Department of Insurance and Retirement:

A change in the Faculty Retirement Plan, effective October 1, 1963, made the University's annual contribution for each eligible staff member equal to 2½ percent of the first \$5,000 of annual salary plus 7½ percent of the amount in excess of \$5,000. Effective October 1, 1966, this was increased to 2½ percent and 9 percent; effective October 1, 1966, to 2½ percent and 10 percent; effective October 1, 1967, to 2½ percent and 11½ percent; and effective October 1, 1968, to 2½ and 13 percent.

Effective October 1, 1968, each staff member was given the option to use the total annual contributions by the University and himself to purchase either a 100 percent Fixed Dollar Annuity, or a 50 percent Fixed Dollar Annuity and 50 percent Variable Annuity, or a 25 percent Fixed Dollar Annuity and 75 percent Variable Annuity.

Effective July 1, 1969, and again on July 1, 1970, certain retired staff members and certain widows of retired staff members were given an increase in their total retirement allowances.

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