ON THE COVER  Sharing preparation for finals week were three osteopathic medical students reviewing slides at a study carrel. From left to right are Arthur Schurgin, Richard Wandzel, and Douglas Joyce.

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COMMUNIQUE  Communique, a newsletter publication of the Michigan State University College of Osteopathic Medicine, is issued 18 times a year through the Health and Medicine Section of the MSU Department of Information Services, A314 E. Fee Hall, East Lansing, MI 48824; telephone 517/353-0820. Members of the Editorial Advisory Committee include Allen W. Jacobs, Ph.D. (Chairman); Francis A. Bernier, Ph.D., Gordon C. Spink, Ph.D., D.O.; Nancy M. Houston, B.A. (Editor); Patricia Grauer, M.A. (Associate Editor). Production and circulation manager is Carol Howland. Date of next issue will be April 9, 1979. Copy deadline for next issue: March 28, 1979.
MSU OSTEOPATHIC FACULTY TO SPEAK AT INTERNATIONAL CONGRESS

Five faculty from the Michigan State University College of Osteopathic Medicine will present major papers at an international congress on manual medicine in West Germany April 18-22.

The meeting, the sixth of the Federation Internationale de Medecine Manuelle, will be held in Baden-Baden for physicians, basic scientists and others working in the field. Speakers from the MSU osteopathic college are:

—Myron C. Beal, D.O., professor of biomechanics, on "Osteopathic Basics" and "Inter-Examiner Reliability"

—Phillip E. Greenman, D.O., associate dean for academic affairs, on "Lift Therapy Use and Abuse"

—Robert Little, Ph.D., chairman of biomechanics, on "Modeling of Connective Tissue"

—Herbert Reynolds, Ph.D., assistant professor of biomechanics and anthropology, on "Three-Dimensional Skeletal Geometry of the Pelvic Girdle"

—Robert C. Ward, D.O., professor of medical education research and development and of family medicine, on "Depression and Neuromusculoskeletal Pain"

Participants are expected from Australia, Austria, Belgium, Czechoslovakia, France, East and West Germany, Great Britain, Hungary, Iran, The Netherlands, Norway, Rumania, Sweden and the United States. Four other persons from the United States will present papers at the congress.

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ADMINISTRATIVE DIRECTOR NAMED AT MSU CLINICAL CENTER

The former clinical administrator of the Kaiser-Permanente Medical Care Program in Denver, Donald E. Gerhardt has been named administrative director of the Clinical Center of Michigan State University. His appointment was approved recently by the MSU Board of Trustees.

As the Clinical Center's top administrator, Gerhardt oversees a $2-million budget and a staff of more than 100 persons in administrative and medical support services.

The Clinical Center opened in 1976 as MSU's first health care building designed for the general public and now has 40,000 outpatient visits annually. Medical and nursing education programs in the $18.1 million facility — and the patient services provided in conjunction with them — are under the direction of MSU's College of Osteopathic Medicine, College of Human Medicine, and School of Nursing.

Before joining Denver's Kaiser-Permanente Medical Program in 1974, Gerhardt was a statistical analyst and later administrative assistant in charge of the radiology department at Denver General Hospital. He also had managerial experience at Hennepin County General Hospital in Minneapolis, and took additional hospital administration training at St. Luke's Hospital in Fargo, N.D.

Gerhardt holds a master of science degree in health administration (1974) from the University of Colorado, and completed his undergraduate work at Concordia College (Minnesota) where he earned a B.A. degree in economics and later took a sequence in hospital administration.

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-3-
COMMUNITY HEALTH SCIENCE TRAINING PROGRAM INVOLVES TRI-COUNTY OFFICE ON AGING

The wide variety of the ages and conditions of real world patients sometimes comes as a shock to newly-graduated physicians if their only examination experience has been limited to members of their own peer group.

Medical educators at Michigan State University are employing two techniques to increase students' exposure to patients of other age groups. One is a simulated patient program, where people from a wide age range play the roles of patients with the symptoms of certain diseases and muscular-skeletal disorders.

Another technique is the direct examination of elderly patients in the local community. Recently, MSU's Department of Community Health Science held such a training program in Lansing with the cooperation of the Tri-County Office on Aging.

Donald Tavano, Ph.D., associate professor of community health science, coordinated the program arrangements with Mrs. Dorothy Payne of the Tri-County agency. George Gross, D.O., professor of community health science, was clinician supervisor of the class.

The Tri-County Office on Aging has offered other medical clinics at the Civic Center, along with additional help services for the elderly, for some time. This was the first time, however, that medical students were involved in the examinations.

"As part of a class requirement, first-year MSU medical students enrolled in Comprehensive Patient Evaluation III provide free physical examinations for elderly persons at the Lansing Civic Center," Tavano explains. "A similar program was conducted at the Ingham County Medical Care Facility in Okemos. Each student in the class was required to participate in one three-to-four-hour examination session in rotation."

Cyril Akpom, M.D., professor of community health science and one of the initial planners of the Tri-County class project, reports that the students were making findings unique to their past experiences during their examinations. Such discoveries are useful, for they widen the student's examination criteria when working with other patients, Akpom says. The new experiences are then often conveyed to other students through group examination critique sessions.

Judith Annen, first-year COM student and student coordinator for the class, says that both the elderly patients and the students had some misgivings about the other group at the beginning of the program. After the first two weeks, however, there was an increase of elderly patients coming in for the student exams, and the students were enjoying their new patient relationships.

"We feel that the increase in patients was due to favorable word-of-mouth recommendations made by the first patients to their friends," Annen says. "At the same time, the students knew that they were getting a good working experience in the local community. Some of the students were examining patients for the first time through this program."

More educational programs that stress exposure to elderly patients and the physiological aspects of aging are currently being planned for the MSU medical students' curriculum, Dr. Tavano says.

"There is a strong need for more geriatric education at medical schools," he points out. "Currently, there is little that is offered at any medical school. However, we at Michigan State feel if we can expose the beginning medical student to geriatric patients and aging process education even on a small basis, the student will have a platform of knowledge to apply to his later educational program. Perhaps he will find that there is a need for him to put a special emphasis on the field of geriatrics. Since the population of the United States is gradually getting older, we feel that this emphasis is essential."
OMERAD AWARDED $700,000
FACULTY DEVELOPMENT CONTRACT
FROM BUREAU OF HEALTH MANPOWER

Michigan State University's Office of Medical Education Research and Development has been awarded a three-year $700,000 contract from the Bureau of Health Manpower, Public Health Service, to develop and implement a training program for new faculty in family medicine from both the D.O. and M.D. professions. Objectives of the proposed training program are to:

- Supply some of the needed faculty in family medicine for the D.O. and M.D. professions, with each newcomer possessing a base of proven skills and teaching and student evaluations,

- Equip a smaller number of newcomers with additional skills in instructional design and management and in faculty development, so that departments of family medicine will be increasingly able to meet the educational challenges they face with their own resources, and to

- Provide resources to cooperating residencies (M.D.) and departments of family medicine (D.O.) that will assist them in helping new faculty members make an effective transition to faculty status in their respective institutions.

The objectives will be met through four training program components — a year-long traineeship, a three-month traineeship, a series of one-week training sessions, and resources for short-term workshops on key topics in the teaching of family medicine.

A recruitment process is underway for trainees for the three-month traineeships that start this spring. The more intensive year-long program will be offered beginning this summer. For further information, contact: Dr. Robert Bridgham, project director, A202 East Fee Hall, Michigan State University, East Lansing, Michigan, 48824.

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$95,814 GRANT AWARDED TO
COMMUNITY HEALTH SCIENCE DEPT.
FOR POLICY RESEARCH IN LONG-TERM CARE

The Department of Community Health Science has been awarded a $95,814 grant from the Administration on Aging Agency, Department of Health Education and Welfare to study long-term care policy. Funding for the project will run until September 30 of this year.

Purpose of the development project is "to facilitate the collection and examination of long-term data derived from experimental and longitudinal research to analyze national policy — and to recommend alternative courses of action relevant to priority policy questions."

Principal investigator is Sidney Katz, M.D., professor and chairman of the Department of Community Health Science. Co-principal investigator is Joseph Papsidero, Ph.D., professor in the Department of Community Health Science.

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FINALS WEEK!

Information overload. Can a mega-dose of coffee (for fatigue, the clock and the) would a nap be a good idea? Then — JUBILATION, cleans survivors of the finals be world, spring break awaits some easy living. Oh swee...
Please use this form for submission of material for the biweekly College of Osteopathic Medicine Communique.

Items might include achievements and activities of College personnel such as honors and awards, publications, papers, professional offices, and participation in programs and committees.

The form may also be used for items for the Calendar of Events, suggestions for feature stories, updating of programs, and provision of any other information that might be pertinent for publication in the newsletter.

The editors and editorial advisory committee retain the right to edit or exclude any material.

Please print or type, and do not include any information that is more than one month old.

Date of submission

Name ___________________________ Highest degree ___________________________

Position ___________________________

Address ___________________________ Phone ___________________________

CALENDAR ITEMS

Date ___________________________ Time ___________________________

Event ___________________________

Sponsor ___________________________

Location ___________________________

Other information ___________________________

NEWS ITEMS OR FEATURE SUGGESTIONS ___________________________

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PLEASE RETURN TO the Health and Medicine Section, Information Services, A331 East Fee, Michigan State University, East Lansing, MI 48824. For assistance call 517/353-0820.
MONDAY, MARCH 26, 1979
8 a.m. Registration of students

TUESDAY, MARCH 27, 1979
8 a.m. Registration of students

WEDNESDAY, MARCH 28, 1979
8 a.m. Classes begin
12 p.m. Visiting lecturer: Charles Wang, D.O., assistant clinical professor of family medicine from Grand Blanc, will discuss health care practices in China today. Fee Hall.

THURSDAY, MARCH 29, 1979
4 p.m. Unit III Center Representatives meeting. Michigan Center for Continuing Education in Osteopathic Medicine, 900 Auburn Rd., Pontiac.
8:15 a.m. Grants workshop II: A continuation of the first grants workshop, this program is offered to its previous participants until 11 a.m. E-2 (experimental classroom) Fee Hall.

SATURDAY, MARCH 31, 1979
8 a.m. Human Nutrition Symposium sponsored by Sigma Sigma Phi fraternity and the Michigan Center for Continuing Education in Osteopathic Medicine. Topics for the two-day program include nutrition for neonatal to geriatric persons, with emphasis on athletes, cancer and cardiovascular patients, alcoholics and drug addicts, and pre- and post-operative patients. Junk food, obesity and other problems will be addressed. Approval for 6-3/4 hours of Category I credit for each day has been requested from the American Osteopathic Association and the Michigan Board of Osteopathic Medicine and Surgery. For information, call 313/335-7742. Michigan Center for Continuing Education in Osteopathic Medicine, 900 Auburn Rd., Pontiac.

SUNDAY, APRIL 1, 1979
Human Nutrition Symposium (see March 31). Michigan Center for Continuing Education in Osteopathic Medicine.
MONDAY, APRIL 2, 1979

8:30 a.m. Behavioral Objectives Workshop, offered by Steven Downing of the Office of Medical Education Research and Development. Designed to familiarize participants with the use of behavioral objectives in instructional programs, the workshop will allow participants to write and use objectives.

TUESDAY, APRIL 3, 1979

3:30 p.m. Dean's seminar: "An Appraisal of Current Thought on the Origin of Human Cancer" by J. Justin McCormick and Veronica Maher, codirectors of the College of Osteopathic Medicine's Carcinogenesis Laboratory. They will discuss recent theories which suggest 60 to 90% of human cancers are caused by chemical agents. Persons interested in attending should contact Sharon Rochon, 355-9611 by March 30. Fee Hall.

WEDNESDAY, APRIL 4, 1979

10 a.m. Internship Information Program. Representatives from osteopathic hospitals throughout the country will be available to discuss opportunities for internships and residencies offered at their hospitals. East Fee Hall. For information, contact the Office of Student Affairs, 353-7741.

THURSDAY, APRIL 5, 1979

7 p.m. "Nutrition and the Emotions" by Paul Parente, D.O., associate clinical professor of family medicine from Orchard Lake. E106 Fee Hall.

FRIDAY, APRIL 6, 1979

9 a.m. Vetavisit, an open house of MSU's Veterinary Clinical Center, includes displays, exhibits and demonstrations for the animal owner and animal enthusiast. Until 5 p.m.

MARK YOUR CALENDARS

College of Osteopathic Medicine hooding ceremonies will be held Friday, June 8, at 3 p.m. in the University Auditorium. A reception follow immediately in the Union Ballroom. University commencement exercises will be held Saturday, June 9 at Jenison Field House.

The next calendar issue will be April 9. Deadline for inclusion of material is noon, Wednesday, March 28. Contact Health and Medicine Information, A314 East Fee Hall, 353-0820.
week!!

Claudia Osborn

Mary Puls

Lyle Mindlin

Donald Kring

Daniel Fett

Rita Peterson

Dennis Treece

feeling shared with

Ed Conley

Kirk Bellis

The poor head take any more?

Yes, or both. A race with

In a dar. Super stress.

Then hit the books again?....
STUDENT VOLUNTEERS GAIN VALUED CLINICAL EXPERIENCE AT DRUG CENTER

MSU osteopathic medical students volunteering time at East Lansing's Drug Education Center are being rewarded for their efforts on three levels of experience, reports DEC director Elliott Frank.

"The nine students now working at the center are able to put their new skills and knowledge together to help others," Frank points out. "They're also gaining practical medical experience and the good feeling from providing a needed service to the community."

The student volunteers from MSU's College of Osteopathic Medicine are: Phil Bryant, Vicki Manzano, Rob Norman, Pat Rodgers, Kevin O'Connell, Bob Church, George Charney, Valerie Payne and Vick Kapil. They take histories before the patients are examined by one of the fifteen physicians who also volunteer their time at DEC's medical clinics. Students interview patients to learn why they come to the clinic, onset of their symptoms, and background of their previous medical problems.

"Providing patient histories saves the physicians a lot of time. And it gives the students additional experience in relating to patients," Frank says.

"COM students have been volunteering since 1975, and we feel they provide excellent help. They are very dependable and valued additions to the organization."

Rob Norman is a second-year student who has worked at the DEC since last summer. The experience has provided me with a lot of valuable extra clinical experience," Norman says. "In particular, it gives me the opportunity to help improve my interviewing skills."

The DEC offers three general medical clinics each week on a first-come-first served basis. The clinics are designed to handle most types of non-emergency health problems, but do not provide general physicals. There is a pediatric clinic for children twelve years old or younger, emphasizing well-baby care, immunization, diagnosis and school or camp physicals. In addition to the volunteer physicians, the DEC employs a full-time public health nurse and health counselors.

"Most of our patients are females 13 to 20 years old," Frank says. "Consequently, about 80 percent of the cases at the clinics are gynecological in nature."

The DEC also offers a 24-hour crisis intervention hotline service, a runaway aid program, psychological counseling, drug information and education and legal and referral services. Anyone interested in volunteer work at the DEC should contact Elliot Frank at 351-4000 or stop by 398 Park Lane in East Lansing during the day.

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$1,000 ESSAY AWARD GOES TO MSU-COM STUDENT

Douglas Joyce, M.S., first-year COM student, has been selected as one of the $1,000 winners in the annual Osteopathic Students' Essay Contest, sponsored by Intermedics, Inc. Title of Joyce's entry was "Various Complications Associated with Transvenous Endocardial Pacing."

Theme for the 1978 competition was cardiac pacing, either temporary or permanent. The contest is open to all students enrolled in U.S. osteopathic medical schools.

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Fred L. Mitchell, Jr., D.O., professor of biomechanics, presented two papers at a postdoctoral training seminar for the American College of Osteopathic Internists at Boca Raton, Florida. His presentations included "Musculoskeletal Aspects of Gastrointestinal Disease" and "Osteopathic Orientation in the Management of Endocrine Disorders."

Craig Downs, D.O., 1975 alumnus and chairman of the Department of Emergency Medicine at Central Michigan Community Hospital, is teaching physics for radiology technologists at Mid-Michigan Community Hospital. He is also serving on the College’s Paramedic Advisory Committee, and is a part-time instructor in two paramedic courses.

Downs also was recently appointed to the Emergency Medical Services, Disaster Planning, Administration and Audit, and Scientific Meeting Program for 1980 committees for the Michigan chapter of the American College of Emergency Physicians. Certified as an advanced cardiac life support instructor, he gave a course on basic cardiopulmonary resuscitation for physicians in January.

Anthony J. Malcoun, D.O., clinical professor of osteopathic medicine from Detroit, has been appointed to the Council on Education and Evaluation of the American College of Osteopathic Internists, and has been elected secretary of the Scientific Advisory Board of the Kidney Foundation of Michigan.

Horace Davis, D.O., and John Sealey, D.O., 1976 alumni, and Larry H. Reid, D.O., 1975 alumnus, have opened the Francis Street Medical Center at 1315 Francis St., Jackson.

Teresa Bernardes, M.D., associate professor of psychiatry, was a workshop leader on "Women's Groups for Personal and Social Change" at the annual meeting of the American Group Psychotherapy Association held in New York in February. She also has been selected as that association's representative to the meetings on current research on the psychotherapy of women for the American Psychological Association.

James N. Riley, Ph.D., assistant professor of anthropology, gave an invited paper on "Revival of Indigenous Medicine in Thailand" at the Center for South and Southeast Asian Studies at the University of Michigan on January 12.

Shirley M. Johnson, Ph.D., associate professor of family medicine, and Loudell F. Snow, Ph.D., associate professor of anthropology, are the authors of "What Women Do Not Know about the Menopause" published in Osteopathic Physician 46: 28-37, #2, 1979.


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INTERNSHIP INFORMATION AVAILABLE ON APRIL 4

An Internship Information Program will be held in the College of Osteopathic Medicine, East Fee Hall, Michigan State University, on Wednesday, April 4, 1979, from 10:00 a.m. to 5:00 p.m. Representatives from osteopathic hospitals throughout the country have been invited and will be available to discuss opportunities for internships and residencies offered at their hospitals.

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George G. Carothers, D.O., assistant clinical professor of osteopathic medicine (Grand Rapids), lectured on "Single State Ureterosigmoidostomy with Colocolostomy" at the February 22 conference on "Surgical Inquisition" sponsored at St. Thomas, in the Virgin Islands, by the American Osteopathic Association.


Ronald C. Simons, M.D., associate professor of psychiatry, while on sabbatical leave last year presented talks on his work at the University of California at Hayward, the University of Hawaii, the University of the Philippines at Los Banos, the Japanese National Museum of Ethnography, and at the Institute for Medical Research in Malasia. Dr. Simons was recently elected to the executive board of the International Society for Human Ethology, and recently appointed to the board of editorial commentators of the journal The Behavioral and Brain Sciences, published by Cambridge University Press.

Joseph Vorro, Ph.D., assistant professor of anatomy, presented a paper entitled "Biomechanical Analysis of Symmetrical and Asymmetrical Cervical Function" at the 1979 AOA Research Conference held March 16 in Chicago. Co-authors: William Johnston, D.O., and Robert Hubbard, Ph.D., of the Department of Biomechanics.


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NAMES IN THE NEWS/(from Medical World News for March 5, 1979)

"As professor and chairman of pediatrics at the New Jersey School of Osteopathic Medicine of the College of Medicine and Dentistry of New Jersey in Camden: Thomas F. Santucci, Jr., D.O., who has been professor of osteopathic medicine at Michigan State University College of Osteopathic Medicine in East Lansing since 1977. Before that, Dr. Santucci was professor of pediatrics and dean of academic affairs at the College of Osteopathic Medicine and Surgery in Des Moines, Iowa."

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VETAVISIT SCHEDULED FOR APRIL 7

The 16th annual open house of Michigan State University's College of Veterinary Medicine — VETAVISIT — will be held this spring on Saturday, April 7 at the MSU Veterinary Clinical Center. Open house hours are from 9 a.m. to 5 p.m.

The program, open to the public, includes exhibits, films and demonstrations on a wide range of subjects, including nutrition and grooming for horses, small animal first aid, kitten and puppy care, and other practical animal health topics. Veterinary student chairman of VETAVISIT is Mitch Rode, (517) 355-7624.

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GIFTS AND GRANTS

The following medically related gifts and grants were among those accepted by the Michigan State University Board of Trustees at its January and February meetings.

Dean of Osteopathic Medicine
National Cancer Institute
—Study interaction of carcinogens with DNA and repair of lesions/V. Maher

National Institutes of Health
—Health professions capitation grant
  M. S. Magen

Michigan Osteopathic College Foundation
—Biomedical research/P. Gerhardt

Anatomy
National Institute of Neurological and Communicative Disorders and Stroke
—Experimental studies of sensory pathways
  S. Kitai

Anthropology
National Institute of Child Health and Human Development
—Crosscultural investigation of childbirth practices/B. Jordan

Biochemistry
National Institutes of Health
—Fatty acid synthetase and a new hemo-protein, H-430/W. C. Deal
—Phosphonoacetic acid; antiviral and cytotoxic action/J. A. Boezi
—Metabolic products in diabetes:
  GC-MS quantitation/ C. C. Sweeley

National Science Foundation
—Enhancement of biological nitrogen fixation/K. R. Schubert

Biomechanics
U. S. Air Force Office of Scientific Research
—Provide the basis for a more accurate geometric simulation of the dynamic human body/H. Reynolds.

Human Development
Kidney Foundation of Michigan
—Study the possible induction of T cells in CLE by thymic factors and to understand the mechanisms of this induction by assaying for specific surface membrane markers or lymphocytes/D. Kaufman

Medicine
American College of Emergency Physicians
—PEER II test development/J. Wiegentein

University of Pittsburgh
—Use with project on NSABP protocols/L. Suhrland
—Cancer research/L. G. Suhrland

Saginaw Cooperative Hospitals, Inc.
—Fellowship support in cancer research/N. Dimitrov

Microbiology and Public Health
National Institute of Allergy and Infectious Diseases
—Supplies/W. G. Chaney, W. J. Esselman
—Antimicrobial properties of the liver/R. J. Moon
—Iron-dependent enhancement of virulence in yersiniae/R. Brubaker
—Trypanosomiasis: mechanisms of immunity and resistance/F. Kierszenbaum

National Institute of General Medical Sciences
—The structure of chromatin from meiotic yeast/P. T. Magee
—Membrane morphogenesis and differentiation in bacteria/R. L. Uffen

Colorado State Board of Agriculture
—Immunoparasitology of cysticercosis/J. Williams.
GIFTS AND GRANTS (continued)

Office of Medical Education Research and Development
Kirkville College of Osteopathic Medicine
Chicago College of Osteopathic Medicine
—Assessment of problems and priorities in osteopathic principles education/ R. Ward, S. Sprafka

Pathology
Michigan State Medical Society
—Support placental tissue registry for the State of Michigan/ C. Sander

World Health Organization
—Host-parasite relationships and inflammatory pathology in Onchocerca cervicalis/ R. W. Leid

Pharmacology and Toxicology
National Heart, Lung and Blood Institute
—Central neural control of cardiovascular function/G. L. Geber
—Cardiac glycosides: Mechanism of inotropic action/ T. Akera

World Health Organization
—Basic and applied aspects of new techniques to evaluate the efficacy and mode of action of antischistosomalous drugs/ J. L. Bennett

National Institute of Arthritis, Metabolism, and Digestive Diseases
—Factors affecting renal physiology in the newborn/ J. B. Hook

Dow Chemical Company
—Department development/J. B. Hook

National Institute on Drug Abuse
—1-A-Acetylmethadol: cardiac effects and disposition/ J. Stickney

National Institute of Mental Health
—Catecholamines as central nervous transmitters/ K. E. Moore

Pharmaceutical Manufacturers Association
—Role of monoamine receptors in the mechanism of action of tricyclic anti-depressants/ J. E. Thornburg
—An assessment of carcinogen-induced methylation of DNA-purines/ J. Goodman
—Treatment of the enzyme deficiency disease scurvy by enzyme replacement therapy/ P. Sato

Physiology
National Institute of Aging
—Institutional allowance/ J. Meites, R. W. Steger
—Comparative physiological studies of vertebrate eyes/ J. R. Hoffert

National Heart, Lung and Blood Institute
—Mechanisms of hemodynamic changes during digestion/ C. Chou

National Institutes of Health
—Reflex control of renal circulation and function/ L. C. Weaver

W. L. Newhall
—Studies in the field of epilepsy in dogs/ J. G. Cunningham

National Institute of Arthritis, Metabolism and Digestive Diseases
—Control of secretion of hypothalamic-pituitary hormones/ J. Meites

Psychiatry
Warner–Lambert/ Parke–Davis
—To conduct protocol as outlined in drug study proposal/ R. Bielski

Psychology
Michigan Department of Commerce
—Special energy education evaluation project/ W. D. Crano, C. D. Johnson

National Institute of Neurological and Communicative Disorders and Stroke
—Internal sensing systems and drinking behavior/ G. I. Hatton

Zoology
Environmental Protection Agency
—Assessment of energy-related toxicant stress in an engineered ecosystem/ R. Boling, W. E. Cooper.