ON THE COVER

A boat excursion down the Rhine completed the program of the Federation Internationale de Medecine Manuelle held in Baden-Baden. MSU-COM participants included (left to right) L. A. Mahohn, Philip Greenman, Jeanne Mill, Walter Mill, Helen Ward, Robert Ward, Esther Beal and Myron S. Beal.

INSIDE THIS ISSUE

3 MSU faculty make presentations at Baden-Baden manual medicine congress

4 Baden-Baden congress

5 James Schwinghammer memorial lecture/ Hooding ceremonies/ Neuromuscular Disease Symposium June 1

6 Fee Follies feature

7 Fee Follies feature

8 Physicians should check patients for food intolerance reactions: Parente

9 National manual medicine conference at MSU June 18-22

10 Graduation dinner-dance/ Sigma Sigma Phi spring activities/ Holistic medicine focus of CME seminar

11 People/ Gifts and grants

12 Gifts and grants

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 June 4, 1979. Copy deadline for next issue: May 23, 1979.
MSU FACULTY MADE PRESENTATIONS AT
BADEN-BADEN MANUAL MEDICINE CONGRESS

Faculty from the Michigan State University College of Osteopathic Medicine were among those presenting major papers at the sixth annual congress of the Federation Internationale de Medecine Manuelle, held in mid-April in Baden-Baden.

Myron C. Beal, Philip E. Greenman, Robert Little, Herbert Reynolds, and Robert Ward were among the ten persons from the United States making presentations at the meeting.

Others participants were from Australia, Austria, Belgium, Czechoslovakia, France, East and West Germany, Great Britain, Hungary, Iran, The Netherlands, Norway, Rumania, and Sweden.

Well-received at the congress were two half-days of video tapes used in instruction at MSU-COM, shown concurrently with the oral presentations.

Walter C. Mill, D.O., chairman of the Department of Osteopathic Medicine, and L. A. Marohn, D.O., associate professor of family medicine, attended the congress but did not make presentations.

The next Federation Internationale de Medecine Manuelle meeting will be held in 1983 in Zurich.

College of Osteopathic Medicine presentations included the following:

Myron C. Beal, D.O., professor of biomechanics: "Inter-examiner Reliability"

Beal's presentation detailed the research of the Biomechanics Clinicians Research Group on the reliability of information obtained in structural examinations and the manner in which physicians obtain their data. Their results showed that two or more examiners working independently using their own testing procedures can achieve agreement on identification of segmental levels of somatic dysfunction, but that the reproducibility of findings cannot be taken for granted.

They found that where examiners use the same tests, agreement can be reached on gross findings such as relative position of anatomical landmarks, but interexaminer correspondence is poor for more refined tests of tissue texture and joint motion.

Their research indicated that three physicians can negotiate an agreement of testing procedures and findings, can independently monitor a patient's progress under treatment, and achieve a high degree of interexaminer agreement.

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

In a survey of 200 consecutive patients with symptomatic low back pain, Greenman found sacral base unleveling of more than four millimeters in 64% of the patients. He detailed techniques for a complete roentgen examination of the lumbar spine and pelvis, and reliable methods to determine the sacral base plane.

Citing representative cases demonstrating reproducibility within 1.5 millimeters, Greenman discussed lift therapy in the presence of advanced spondylosis, and spondylarthrosis, and contralateral scoliosis; inadequate lift therapy based on measurement, and the importance of complete evaluation to rule out organic disease.

Techniques for lift therapy to level the sacral base plane as an addition to the physician's armamentarium in dealing with patients with lowback pain were presented.
Robert Little, Ph.D., chairman, Department of Biomechanics: "Modeling of Connective Tissue"

Stressing the importance of considering the mechanical function of the body in health and disease, Little discussed particularly the mechanics of the connective tissue, which controls the motion and force distribution in the body.

Little said that all soft connective tissue displays viscoelastic effects, incorporating both the flowing properties of a fluid and the memory of initial shape which characterizes a solid. He discussed the importance of load or deformation histories in dealing with mechanical models.

In connective tissue research precise mathematical models are used to characterize their response to deformation, including the properties of collagen, elastin and ground substance in a given tissue.

Finally, Little used the soft connective tissue from the spinal system as an example of the importance of considering the mechanical properties of these tissues, particularly for manual medicine.

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

Citing the value of the three-dimensional skeletal geometry of the pelvic girdle as basic information for both biomechanical and clinical models of body position and mobility, Reynolds presented techniques for developing such a model. Using an anatomically-based Cartesian coordinate axes system and anatomical point marks at the sites of muscular of ligamentous origins and insertions, Reynolds developed axes systems which can be used in the description of both geometric size and joint kinematics.

Reynolds uses stereo X-rays and computer tomography in his research.

Robert C. Ward, D.O., professor of medical education research and development and professor of family medicine: "Depression and Neuromusculoskeletal Pain" and "Headache and Cervico-occipital Trauma."

Ward's first paper noted that depression was present in more than 90% of 200 patients with intractable head pain which was not apparently caused by serious disease. Using the Zung Depression Scale and a functional limitation index, Ward was able to demonstrate the frequency, duration and severity of headache in these patients could be reduced more than 85% of the time by manipulative therapy.

He outlined techniques for neuromuscular assessment, the perfusion characteristics of headache, and the use of stretch techniques of manipulative therapy to activate superficial and deep thermal and mechanoreceptors.

In his second presentation, Ward discussed a five-year analysis of soft tissue and myofascial characteristics of both automobile and sports cervico-occipital injuries. He presented evidence that "overstretch" and distortion of pain-sensitive cervical, thoracic and lumbar fascias inhibits healing of injuries. He discussed diagnostic palpatory and manipulative therapy techniques to promote recovery in these tissues.

***

-4-
FIRST SCHWINGHAMER MEMORIAL LECTURE MAY 31

The first memorial lecture to honor James M. Schwinghamer, professor of physiology, will be given May 31 by Harvey V. Sparks, M.D., chairman of the Department of Physiology.

Schwinghamer, who taught undergraduate, graduate and professional students in the College of Osteopathic Medicine, College of Human Medicine and College of Veterinary Medicine, was highly respected by both his colleagues and his students.

In 1977 he received MSU's highest faculty honor, the Distinguished Faculty Award, and was cited as "a scholar and teacher of truly exceptional ability." He was a 1972 winner of the Teacher-Scholar Award, which lauded his dedication and unusual talent in "combining to make his teaching successful with diverse types of students."

He came to MSU as a research associate in 1966, was appointed assistant professor of physiology in 1968, associate professor in 1972, and full professor in 1977.

Sparks' presentation, "Vasodilator Mechanisms in Ischemic Muscle" will begin at 3:30 p.m. in E106 Fee Hall. Refreshments will be served at 3 p.m.

The first lecture is sponsored by the Department of Physiology, College of Osteopathic Medicine, College of Human Medicine and College of Veterinary Medicine.

The James M. Schwinghamer Memorial Fund has been established to support the memorial lecture. Contributions may be made through the MSU Development Fund, 220 Nisbet Building, Michigan State University, East Lansing, Michigan 48824.

***

HOODING CEREMONIES FRIDAY, JUNE 8

Hooding ceremonies for the 1979 graduates of the College of Osteopathic Medicine will be held at 3 p.m. Friday, June 8, in the University Auditorium.

A reception will follow immediately in the Union Ballroom.

The graduation dinner/dance will be held at 8 p.m. Friday in Long's Banquet and Convention Center, 6810 S. Cedar, Lansing.

On Saturday, June 9, graduate commencement exercises will be held in Spartan Stadium. They will be moved indoors to Jenison Fieldhouse in case of inclement weather.

***

NEUROMUSCULAR DISEASE SYMPOSIUM

The annual Neuromuscular Disease Symposium will be held at the Kellogg Center for Continuing Education at MSU on Friday, June 1. The program will include presentations, exhibits, and round table discussions on nerve and muscle diseases.

Sponsored through a grant from the Greater Detroit-Southeastern Michigan Chapter of the Muscular Dystrophy Association, the program is supported by the MSU College of Osteopathic Medicine, College of Human Medicine and Lifelong Education Programs.

For information, contact Joan Martin Alam, 517/353-7782.

***
Fee...
TUESDAY, MAY 29, 1979

11:30 a.m. Faculty Development Program: "Introduction to the Process of Research" by Norman Bell, Ph.D., director of the Faculty Development Program at MSU-COM. The seminar will include eight steps of the research process from defining the problem to stating the conclusions. Lunch is provided. E2 Fee Hall. RSVP Sharon Rochon, 355-9611.

12:30 p.m. Microbiology and Public Health seminar: "Inflammatory Aspects of Rodent Cysticercosis" by R. Wesley Leid, Department of Pathology, MSU. 216 Giltner.

4 p.m. Neuropathology Special Topic Series: "Use of Muscle-Nerve Biopsy in the Diagnosis of Neuromuscular Disease" by Hans Goebel, M.D., University of Gottingen. A131 E. Fee.

4 p.m. Pharmacology and Toxicology seminar: "Behavioral Effects of Hallucinogens and their Interactions with Neurochemical Lesions" by Randall Comissaris, Pharmacology and Toxicology, MSU. B449 Life Sciences.

THURSDAY, MAY 31, 1979

3:30 p.m. First James Schwinghamer Memorial Lecture: "Vasodilator Mechanisms in Ischemic Muscle" by Harvey Sparks, M.D., chairman of the Department of Physiology, MSU. Refreshments will be served at 3 p.m. Sponsored by College of Osteopathic Medicine, College of Human Medicine, College of Veterinary Medicine and Department of Physiology. E106 Fee Hall.

FRIDAY, JUNE 1, 1979

8 a.m. Neuromuscular Disease Symposium. Health professionals, researchers and others interested in nerve and muscle diseases will hear presentations, round table discussions and view exhibits. Sponsored by Greater Detroit-Southeastern Michigan Chapter of Muscular Dystrophy Association in cooperation with MSU medical schools and Lifelong Education Programs. Kellogg Center.

5 p.m. "Holistic Approach to Pain Management and Stress Related Conditions." Through June 3. 12 hours CME credit requested from AOA. Michigan Center for Continuing Education in Osteopathic Medicine, 900 Auburn Rd., Pontiac; 313/335-7742.
CALENDAR
FOR THE WEEK OF MAY 21

MONDAY, MAY 21, 1979
7 p.m. "Iridology: Your Iris and Your Health" by Gary Campbell, D.O., associate professor of family medicine. Sponsored by Undergraduate American Academy of Osteopathy. E106 Fee Hall.

TUESDAY, MAY 22, 1979
11:30 a.m. Faculty Development Program: "How to Lead a Group Discussion" by Norman Bell, Ph.D., director of MSU-COM Faculty Development Program. The presentation will include preparations for and problems of leading a group discussion. Lunch is provided. E2 Fee Hall. RSVP Sharon Rochon, 355-9611.
4 p.m. Pharmacology and Toxicology seminar: "Regulation of Nigrostriatal Neuronal Activity" by Suzanne Wuerthele, Pharmacology and Toxicology, MSU. B449 Life Sciences.

WEDNESDAY, MAY 23, 1979
3 p.m. Medical Anthropology Program: "Chinese Influence on New Health Care Programs in India" by Charles Leslie, professor of anthropology and the humanities, Center for the Culture of Science and Biomedicine, School of Life and Health Sciences, University of Delaware. 321 Baker Hall.
4 p.m. Microbiology and Public Health seminar: "Social Motility in Myxococcus xanthus" by A. Dale Kaiser, Department of Biochemistry, Stanford University. 101 Biochemistry.
7:30 p.m. Medical Humanities Program: "Popular Cultural Medicine in World Perspective" by Charles Leslie, University of Delaware. C106 Holmes Hall.

SUNDAY, MAY 27, 1979

The next calendar issue will be June 4, 1979. Deadline for inclusion of material is noon, Wednesday, May 23. Contact Health and Medicine Information, A314 East Fee Hall, 353-0820.
COMMUNIQUÉ

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

__________________________

__________________________

__________________________

__________________________

__________________________

__________________________

__________________________

PLEASRETURN TO the Health and Medicine Section, Information Services, A331 East Fee, Michigan State University, East Lansing, MI 48824. For assistance call 517/353-0820.
The annual catharsis for the College of Osteopathic Medicine is complete. The Fee Follies, held this year in the Union Ballroom, met the expectations of fun, frolic, insult, appreciation, and -- talent.

Some of the acts included Mary Nisley's can-can and Peter Sherrill's monologue and the "Kreb Cycle Rag."

Kim Birrell (from the Fee Hall grill staff) sang, as did Val Payne.

The infamous Flying Zucchini, demonstrating techniques for osteopathic manipulative therapy, included Dan Hunt, Dan Thomas, Karen Turner and Bobby Martin.

The Fee Follies band, now third-generation, included Jeff Kyff, Jay Cherubim, Art Schurgin, Ted Szymanski, Peter Sherrill, Scott Groves (CHM), and Frank Mills.

Rick Butler, Steve Morgan and Art Schurgin played in a second band.

The Disco Dollies featured faculty Lon Hoover, Myron Beal, John Gobel, and John Thornburg, and students Debby Dykema, Karen Turner, Lynn Pirie, Linda Fisher and Pat Draginis.

Coordinators for this year's Follies were Jay Cherubim and Jeff Kyff.
PHYSICIANS SHOULD CHECK PATIENTS FOR FOOD INTOLERANCE REACTIONS, DIET EXPERT SAYS

Many adverse reactions to improper eating habits result from forcing the body to operate outside of its natural biological limits, a clinician told a group of MSU medical students in a lecture sponsored by the Student Osteopathic Medical Association.

"Obesity, of course, is the most obvious result of an improper diet," Paul Parente, D.O., associate clinical professor of family medicine, pointed out. "However, poor eating can also result in toxic reactions to certain foods and the development of unusual physical symptoms seemingly unrelated to a person's nutritional intake. These symptoms can make the diagnosis of a patient's ailment extremely difficult unless the physician pays close attention to the patient's dietary habits."

The patient who is experiencing reactions to certain foods may exhibit violent behavior or may just complain of fatigue, Parente said. However, routine medical tests will often fail to show any pathology or deviations from normal levels.

"Many of the overweight people examined in our clinic really don't seem to have that much wrong with them," Parente explained. "Yet we know that there is an obvious dysfunction."

When given a six-hour glucose tolerance test, most of the overweight patients either show elevated blood sugar or decreased levels 20 to 30 points below normal, the physician emphasized. These results indicate a carbohydrate intolerance, leading to increased fat storage due to insulin hyperproduction results from the patients' physiology reacting in a maladaptive manner to their poor eating habits, Parente said.

"Accompanying the physiological maladaptation is the patients' behavioral maladaptation," he said. "Overeating the wrong foods is often the obese patient's way to trying to adapt to the stresses in his or her environment."

Parente also feels that some reactions to certain foods may also be the body's maladaptive reactions to changes in the diet. He suspects that in some cases certain food trigger the same reaction as an infection of viruses might. In other words, the body's immune system orders the release of lymphocytes to attack the "foreign elements" of the food. This defensive mistake could cause unusual and acute symptoms in the patient.

"We consider the reactions unusual because they are not the normal ones a physician would equate to a food allergy, such as itching and rashes," Parente pointed out. "The reactions we commonly see are fatigue, lack of concentration, tiredness, weight gain due to fluid retention and sometimes unexplained violence or anxiety. Such reactions are convincing us that we are not dealing with simple allergenic responses to the food."

Just why such reactions to foods should take place is puzzling until one considers that dramatic changes in eating habits have taken place over a very short period of time in comparison to the length of man's existence Parente said. The many new substances the body is expected to tolerate, digest and utilize may tax some people's systems beyond their natural limits of adaptation.

Physicians should be alerted to observe food intolerance and allergy when evaluating behavior changes, fatigue syndromes, obesity problems, or vague emotional psychoneurotic type syndromes, Parente concluded.

—Charles Weirauch
NATIONAL MANUAL MEDICINE CONFERENCE
AT MICHIGAN STATE UNIVERSITY JUNE 18-22

A national conference on "Basic Principles of Manual Medicine" will be held for physicians and physical therapists at Michigan State University June 1822.

The program is a five-day intensive course in the fundamentals of manual medicine, the use of manually applied forces to the body for the relief of pain and other impairments. Lectures, demonstrations and small group practice sessions will include the spine, pelvis and the extremities.

To be held at MSU's Kellogg Center for Continuing Education, the program is sponsored by the MSU College of Osteopathic Medicine, College of Human Medicine and Continuing Education Service in cooperation with the North American Academy of Manipulative Medicine.

Faculty include:

- Myron Beal, D.O., professor of biomechanics, MSU College of Osteopathic Medicine
- John Bourdillon, F.R.C.S., formerly senior consulting orthopedic surgeon, Gloucester, England
- Philip Greenman, D.O., associate dean for academic affairs, MSU College of Osteopathic Medicine
- Paul Kimberly, D.O., Steunenberg professor and chairman of the Department of Osteopathic Theory and Methods, Kirksville College of Osteopathic Medicine

The conference has been approved for 40 hours of Category I continuing medical education credit by the American Medical Association. Application has been made for 40 hours of Category I credit from the American Osteopathic Association.

For information or registration, contact Joan Martin Alam, Kellogg Center for Continuing Education, Michigan State University, East Lansing, Michigan 48824; 517/353-7822.

***

PROGRAM: BASIC PRINCIPLES OF MANUAL MEDICINE

Monday, June 18
- Overview of manual medicine; Why manual medicine; Learning psychomotor skills; Inspection of musculoskeletal system; Spinal anatomy overview; Screening examination; Upper extremities (Part I)

Tuesday, June 19
- Concept of resistant barrier; Essentials of structural diagnosis; Layer palpation; Joint play; Upper extremities (Part II)

Wednesday, June 20
- Anatomy of thoracic and lumbar spine: Vertebral motion; Principles of soft tissue and articular/tic technique; Trigger points — D, T x
- Orthopedic and neurologic examination in correlation with manual medicine.

Thursday, June 21
- Lower extremities (Part I); Manipulative prescription; Thrusting technique; Hip and thigh restriction; Pelvic anatomy

Friday June 22
- Lower extremities (Part II); Sacroiliac diagnosis and treatment direct technique; Indirect technique; Anatomy cervical spine; Soft tissue and articular/tic technique to cervical spine; Muscle energy technique — cervical spine; Summary panel.

***
GRADUATION DINNER/DANCE RESERVATIONS DUE MAY 30

The 1979 graduating class of the MSU College of Osteopathic Medicine will hold a Graduation Dinner/Dance at 8 p.m. on Friday, June 8, in the grand ballroom of Long’s Banquet and Convention Center, 6810 S. Cedar, Lansing.

Faculty and staff awards will be presented at the event.

Reservations must be received by May 30. No tickets will be sold at the door.

Reservations, including $14 per person, should be sent to the Graduation Committee 1979, Office of Student Affairs, College of Osteopathic Medicine, Michigan State University, East Lansing, Michigan 48824.

Questions may be directed to Unit III hospital representatives or to Carole Rizzo, 4124 Lehigh, Northville, Mich. (313/348-0609).

***

SIGMA SIGMA PHI SPRING ACTIVITIES

Sigma Sigma Phi osteopathic fraternity held a potluck reception for first-year students at Pinecrest Townhouses on April 4. More than 50 persons attended.

On April 27, the organization sponsored a post-board-exam disco party for the MSU medical community at Brandywine Apartments.

Sigma Sigma Phi is still taking applications from any first-year student interested in joining. Contact Linda Lafferty, Box 470 or Doug Marsh, Box 466.

***

HOLISTIC MEDICINE FOCUS OF CONTINUING MEDICAL EDUCATION SEMINAR

A holistic approach to pain management and stress related conditions will be the focus of a continuing medical education seminar to be held June 1, 2, 3 at Sugar Loaf Mountain Resort, Cedar.

The use of treatment such as osteopathic manipulative therapy, biogenies, biofeedback, nutrition, and pastoral counseling will be included, with emphasis on the psychological aspects and the osteopathic concept in dealing with stress and pain conditions.

The faculty includes three from MSU: John Schneider, Ph.D., associate professor of psychiatry; John E. Upledger, D.O., associate professor of biomechanics; and Robert C. Ward, D.O., professor in the Office of Medical Education Research and Development and professor of family medicine.

Program chairman is orthopedic surgeon Jere Sutton, D.O., of Lapeer.

For information, contact the Michigan Center for Continuing Education in Osteopathic Medicine, 900 Auburn Road, Pontiac. 313/335-7742. Twelve hours of continuing medical education credit has been requested from the American Osteopathic Association.

***

-10-
Lynn F. Brumm, D.O., professor and chairman of family medicine, has been appointed as a member of the Medical Advisory Council to the Michigan Civil Service Health Screening Unit. His appointment is for 1979, 1980 and 1981.

Ronald C. Simons, M.D., associate professor of psychiatry and adjunct associate professor of anthropology, presented a seminar on "Is There a Place for Ethology in Child Psychiatry?" He spoke April 20 at the Institute for Juvenile Research/Division of Child Psychiatry at the University of Illinois in Chicago.

Michael H. Branson, Ph.D., associate professor of community health science, presented a paper on "Mathematical Programming Models for Hospital Location and Capacity Decisions" at the joint national meeting of the Institute of Management Sciences and the Operations Research Society of America. The meeting was held April 30 - May 2 in New Orleans.

Jon J. Kabara, Ph.D., professor of biomechanics, presented a paper on "GRAS Antimicrobial Agents in Cosmetic Products" at the May 3-4 scientific seminar of the Society of Cosmetic Chemists in Dallas. He also presented "Human Milk Lipids as Host Resistance Factors" at a joint meeting of the American Oil Chemists' Society and the Japan Oil Chemists' Society, held April 29-May 3 in San Francisco.

James N. Riley, Ph.D., assistant professor of anthropology, was discussant for a paper written by Margaret Ajunwa, D.O., assistant professor of family medicine, at the conference on the African-Caribbean link held at MSU May 1. Ajunwa's paper was titled "African Ethno-Medicine and its Influence on Caribbean Folk Medicine."

Malcolm E. Williamson, D.O., assistant clinical professor of osteopathic medicine from Trenton, attended conferences on thyroidology and nuclear medicine at the University of Michigan.

James P. Howard, professor of community health science and assistant dean for community affairs, has been reelected to a three-year term on the Board of the Michigan Association for Better Hearing and Speech, at the spring meeting in Lansing. Howard also spoke at the advanced studies workshop at the Career Conference of the College of Urban Development on May 3.

***

GIFTS AND GRANTS

The following medically-related gifts and grants were among those approved by the Michigan State University Board of Trustees at their April 27 meeting. These grants total $848,664.

**College of Osteopathic Medicine**

General Motors Research Laboratories
- To examine the biological effects of diesel particulate/ J. J. McCormick

U. S. Department of Energy
- Mutagenic and carcinogenic effects of energy-related agents/ J. J. McCormick, V. M. Maher

**Biochemistry**

National Institutes of Health
- Institutional allowance for fellowship/ S. D. Aust
- Xenobiotic conjugation by the intestine/ S. D. Aust

Michigan Heart Association
- Relation between oxygen and carnitine in heart/ L. L. Bieber

(.....continued)
GIFTS AND GRANTS (continued)

Biochemistry (continued)

Thrasher Research Fund
—Mechanisms of immune regulation alpha-fetoprotein/ J. L. Wang

Biophysics

Matthey-Bishop, Inc.
—Conduct research on the biological effects of platinum group metal compounds in cancer chemotherapy/ B. Rosenberg

Engelhard Industries
—Investigation of the antitumor activities of platinum compounds/ B. Rosenberg

Human Development

The Gerber Company

Michigan Department of Public Health
—Support of Crippled Children's Heart Clinic coordinator at Ingham Medical Center/ A. Sparrow

Medical Education Research and Development

Ohio University College of Osteopathic Medicine
—Assessment of problems and priorities in osteopathic principles education/ S. Sprafka, R. C. Ward

World Health Organization
—Prepare a collection of performance assessment instruments/ A. S. Elstein

Medicine

Kidney Foundation of Michigan
—Pathologic effect of aluminum on brain and kidney/ G. H. Mayor

Michigan Heart Association
—Red cell deformability as a function of aging/ A. Bowdler

Microbiology and Public Health

Michigan Heart Association
—Endotoxemia and cardiovascular shock/ R. J. Moon

—Experimental Chegas’ disease/ F. Kierszenbaum

National Science Foundation
—Biochemistry of lectin receptors/ F. B. Dazzo

Obstetrics, Gynecology and Reproductive Biology

Michigan Department of Public Health
—Regionalization of perinatal care/ T. H. Kirschbaum

Pathology

Michigan Department of Public Health
—Completely define the pathology of certain genetically determined diseases of the nervous system/ M. Z. Jones

Michigan Heart Association
—Role of contractile proteins in platelet aggregation/ J. C. Mattson
—Arteriosclerosis in the Chediak-Higashi syndrome/ T. G. Bell

Physiology

MSU Foundation
—Control of microtubule assembly in living frog's eggs/ S. E. Heidemann

Michigan Heart Association
—Potassium and coronary collateral blood flow/ H. V. Sparks
—Interaction of O2, CO2, catechols and PG on coronary blood flow/ J. B. Scott
—Regional hemodynamics in early left heart failure/ J. E. Chimoskey
—Adenosine metabolism by the heart/ H. V. Sparks

National Heart, Lung and Blood Institute
—Development of collateral ventilation/ N. E. Robinson
—Vascular control in experimental diabetes mellitus/ H. V. Sparks

Psychiatry

State of Michigan Department of Mental Health
—Psychiatric residency training/ N. B. Enzer