DEPARTMENT OF PHYSIOLOGY
ANNUAL REPORT
July 1, 1966 - June 30, 1967

ACADEMIC STAFF
E. B. Brown, Jr., Ph. D., Professor and Chairman
Alan M. Thompson, Ph. D., Professor
Donald Johnson, Ph. D., Associate Professor
G. N. Loofbourrow, Ph. D., Associate Professor
L. P. Sullivan, Ph. D., Associate Professor
Alan Goodridge, Ph. D., Assistant Professor
Kenneth L. Goetz, Ph. D., Assistant Professor
James Rhodes, M. D., Assistant Professor
John W. Trank, Ph. D., Assistant Professor
A. Stark Wolkoff, M. D., Assistant Professor.

POSTDOCTORAL FELLOWS
Woo Gyeum Kim, M. D., (International Atomic Energy Agency Fellow)
Seoul National Univ., Korea, 9-1-64 to 8-30-66, returned to Korea.
Norberto Gonzalez, M. D., National Res. Council Fellow, Argentina,
and Cardiovascular Res. Training Grant Fellow, 10-1-65 to 9-30-67.
Helen Starke, M. D., CV Res. Training Grant Fellow, 7-1-66 to 6-30-67.
James Scherbenske, Ph. D., CV Res. Train. Grant Fellow, 9-1-66 to 6-30-67.
Tomi-O Hishida, 9-1-65 to 8-30-66, returned to Nagoya Univ., Nagoya, Japan
Takuma Hojo, M. D., 9-1-65 to 8-8-67, return to Tokyo Medical College,
Department of Surgery, Tokyo, Japan.

GRADUATE STUDENTS
Ray Cook
Larry Welling
Paul Hensleigh
Conrad Johanson
Barbara McDougal
Martin Kramen
Dennis Waring
Gary Bond
Sam Steele
Richard Morrison
Cleve Howard
Edward Martin
Frank Scamman
John Sun
Carol Hendley

Degree Sought
M. S.
Ph. D.
Ph. D.
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KAW VALLEY HEART STUDENTS: (The Science Talent Search Program, summer 1966)

Conice Ladd
Mariella Celletti
Dave Heuber

MEDICAL STUDENTS - Summer Research Fellows

Ron Oelschlager
Larry Rothman
Ted Gnau
Warren Johnson
Robert Varnum
Ira Cox
Robert Stephenson
Bob Boyd
Kent Stockton
Rick Brabbee
Paula Elliott

TEACHING:

The Physiology Course for Medical Students was again taught during the winter and spring quarters, with the last two weeks of the year being devoted exclusively to the combined course in Endocrinology.

Graduate Courses taught during the past year were:

- #320 - Fluid, Electrolyte, and Acid-Base Metabolism - Dr. Brown, spring '67.
- #325 - Biology of Sex - Dr. Johnson, fall 1966.
- #327 - Physiological Instrumentation - Dr. Trank, Winter 1966.

Graduate Seminars #351 offered during the year were:

- Fall: Dr. Thompson, "Cerebral Blood Flow and Metabolism."
- Winter: Drs. Brown and Thompson gave a joint seminar on "History of Physiology."
- Spring: Dr. Trank gave a seminar on "Bioinstrumentation."

Nurses Course in "Basic Human Biology" was again taught in the summer of 1966 by the combined departments of Biochemistry, Anatomy, and Physiology. Dr. John W. Trank and graduate students Kramen, Cook and McDougal, all from the Department of Physiology, and Medical Students Dan Weaver, James Fitzsimmons, Mark Kadyk and Ronald Thomas participated in this joint effort.
Many staff members of other departments at KUMC gave Physiology Department Seminars.

VISITORS AND OUTSIDE SPEAKERS: The following visiting professors presented lectures during the year:


Sept. 22, 1966  R. C. H. Irvine, Sr. Lecturer in Medicine, Univ. of Otago, Medical School, Dunedin, New Zealand. "Muscle Cell pH in Metabolic Acidosis."


Feb. 13, 1967  Dr. Ken Armitage, Department of Zoology, University of Kansas, Lawrence, Kansas. "Effect of photo period on molting and reproduction in the crayfish."


Several professors from the Lawrence Campus presented lectures in our department during the year.
The department of physiology was strengthened considerably during the past academic year by the addition of two new faculty members. Dr. Alan Goodridge joined the department after two years as a postdoctoral fellow in the laboratories of Dr. Eric Ball at Harvard. By virtue of ordering equipment and supplies ahead of his arrival, he got his research program underway in record time. He has obtained research grants from the American Cancer Society and the National Institutes of Health and has completed work for two publications since his arrival. Dr. Goodridge gave the lectures on metabolism in the physiology course for first-year medical students. Dr. James Rhodes joined the department with a joint appointment in Medicine after postdoctoral work at the University of Chicago. Dr. Rhodes' interest is G.I. Physiology and Clinical Gastroenterology. He joins Dr. Arthur Klotz in the Gastroenterology Section of the Department of Medicine and has his research laboratory in connection with Dr. Klotz's laboratories on the first floor of Wahl Hall East. Dr. Rhodes gave the lectures on G.I. Physiology in the course for first-year medical students. Both Drs. Goodridge and Rhodes directed one of the sections of the laboratory work of the physiology course for first-year medical students.

For the first time this year laboratory teaching space for physiology and pharmacology was combined. This was accomplished by dividing the large teaching laboratory in the Pharmacology department into smaller rooms, and using two of these for student teaching along with two of the larger rooms in the Physiology department which are assigned for student teaching. If this had not been accomplished in time for the course to begin in January, this department would have been unable to accommodate the larger class in the laboratories this year. The absolute maximum capacity of our laboratories prior to combining with pharmacology was 64 students. Since the class is divided into two sections, this had meant a maximum class size of 128 students. During the past academic year we had 140 students registered for credit in the freshman physiology course; 124 medical students and 16 graduate students. By combining space with the pharmacology department we now have a capacity in the laboratory of 72 students with the room comfortably filled and a possible capacity of 76 with the rooms crowded. This means a maximum class size of 144 to 152 students. With the slow but steady growth of graduate programs in the basic medical sciences, it is fairly clear that this size class will be reached very soon, even if no further increase in the number of entering first-year medical students occurs. Furthermore, the number of seats in WHE auditorium is 156, and with the number of faculty members and graduate students not registered for credit who attend lectures, the lecture hall was filled to capacity during the past academic year. All of these considerations point to the fact that one of the pressing needs of the immediate future for this medical center is that of a building to house the student teaching functions of the first two years.
ACTIVITIES OF STAFF:

Dr. E. B. Brown, Jr., Professor and Chairman

Modern Medicine, ending December 1966.
Member of American Physiological Society Finance Committee
Kaw Valley Heart Association, Chairman, Research Committee
Research and Education Committee, VA Hospital, K. C., Mo.

Outside lectures presented:
Kaw Valley Heart Summer Students on "Genesis of a Research Program"

Postgraduate Nursing Program on Facing Death, talked on "The
Physiological Process of Dying."

Pediatric Cardiology Group in December 1966.

A series of five lectures given on acid-base physiology for the
Department of Anesthesiology on Tuesdays and Fridays during the winter qtr.

Participated in Medicine Grand Rounds on Basic Acid-Base Disturbances
in Respiratory Failure, December 1966.

Emporia State Teachers College, Emporia, Kansas, December 1966.

Ten lectures at California Medical College, Los Angeles, Feb. 6-17, 1967.
Seminar, Dept. of Physiology UCLA, February 1967.

Postgraduate Medicine's Eastern Circuit December 6-9, 1966, and
Western Circuit January 10-13, 1967.

Postgraduate Symposium on Inhalation Therapy May 20, 1967, "Review
of the Physiology of the respiratory system."

Meetings Attended:
American Physiological Society meetings and APS Finance Committee


Site Visit for Nat. Heart Institute, NIH, to Dept. of Physiology, University
of Wisconsin, Sept. 21, 1966.
Dr. Alan M. Thompson, Professor
Review Editor for papers submitted to Science Magazine.
Member of KUMC Animal Care Committee

Attended the Cerebrovascular workshop in Miami in January 1967.

Lectured in Los Angeles for one week to students in the California Medical College on transport.


Participated in Graduate Student Procurement Trips to William Jewell College at Liberty, Missouri, and Central Missouri State College at Liberty, Missouri, and Central Missouri State College at Warrensburg, Missouri.

Was host to a group from Kansas State Teacher's College (Caduceus Society) Emporia, Kansas, on December 8, 1966, here on the KUMC Campus.

Dr. Donald C. Johnson

Federation meetings in Chicago April 17-21, 1967.

Participated in joint program in Reproductive Physiology with various departments at Kansas State University and the Lawrence Campus which started back in the summer of 1965.

Dr. G. N. Loofbourrow
Was again active in the Neurology Section of the Department of Medicine, Division of Neurosurgery, and the Basic Science Departments, and gave a seminar on the Limbic System, May 19, 1966.

Consultant to VA Hospital, K. C. Missouri

Also continues to read manuscripts for Dr. E. Gellhorn, Professor Emeritus of Neurophysiology, University of Minnesota.

Graduate Student Procurement Trips to Atchison, Kansas, St. Benedicts College and Parkville, Missouri, Central Missouri State College.


Demonstration of Nerve Action Potentials to two groups under aegis of the Regional Council on Higher Education 2-12-66.

Served on three Ph. D. Committees for Graduate Students in the Department of Anatomy.

Dr. L. P. Sullivan
Reviewed papers for J. Pharmacology.


Participated in elective correlation conference for first-year students.

Member of KUMC Research Committee.

Is in the second year of his Career Development Award, July 1, 1966.

Attended APS meetings in Spring 1967.

Principal advisor Dr. J. Scherbenske, NIH Postdoctoral Fellow.

Became member of American Nephrology Society.

Gave paper on Renal ammonium countercurrent system at meeting of KUMC Sigma Xi Club.

Dr. Alan G. Goodridge
Participated in Graduate Student Procurement trips to Tabor College, Hillsboro, Kansas, Sterling College at Sterling, Kansas, and McPherson College at McPherson, Kansas.

Was seminar speaker at University of Michigan, Department of Zoology, in October 1966. "The effect of prolactin on lipogenesis in the pigeon." Consultation with Dr. B. E. Frye.

Participated in a conference on "Ecology of Fat" at the University of Georgia, Athens, Georgia, April 1967.


**Dr. Kenneth L. Goetz:**

Attended American Heart Association annual meeting in New York in October, 1966.

Attended the FASEB meetings in Chicago, April, 1967.

Gave a series of three lectures to Pediatric Cardiology group in Spring, 1967.

Gave a talk on Ventricular Contractility to adult cardiology group in Spring 1967.

Completed requirements for M.D. degree, June 1967.

Served as consultant to Midwest Research Institute.

**Dr. James Rhodes**


Attended FASEB meetings April 1, 1967, in Chicago.

Participated in several medical, surgical and pediatric conferences on clinical problems in GI Physiology.

Participated in Saturday morning Elective Courses in GI to correlate the basic science and clinical aspects.

Lectured to physicians at St. Luke's Hospital in K. C. Mo. on the physiological and clinical aspects of total colectomy and ileostomy in November 1966.

Lectured in Internal Medicine Postgraduate Course on the Physiology of Chronic Active Liver Disease in November 1966.

Participated in Wednesday Physiology Laboratory for freshman students.

Lectured on Protein digestion and absorption at Hines VA Hospital in Chicago in July 1967.
Dr. John W. Trank, Assistant Professor

Attended a meeting in Chicago of the Task Force on Vibration of floor systems in steel-framed buildings of the engineering subcommittee of the Committee on Structural Steel and Steel Plate Producers.

Visited Dr. Oppenheimer at Temple University on June 26, 27, 28, 1966, to serve as a consultant on the design of an experimental procedure involving recording electrical activity from small sensory nerves.

Attended a meeting of the Task Force on Vibration of Floor Systems in New York, August 24, 1966.

On 9/13/66 attended a meeting in Aspen, Colorado, on Cardiovascular Control Systems.

November 20, 1966, presented a paper at the Technology Utilization Conference in Houston sponsored by NASA.

Graduate Student Procurement Trips to Ottawa University, Ottawa, Kansas, and Emporia State College of Emporia, Emporia, Kansas, and Baker University at Baldwin, Kansas.

Consultant to Midwest Research Institute, Kansas City, Missouri.

Dr. A. Stark Wolkoff

Conducted Post Graduate Seminar in Obstetrics and Gynecology and presented two papers:

"The effects of anesthesia on the unborn lamb."

"Negative aspects of the intra-uterine contraceptive device."


Presented a paper on "Medical information needed by personnel and guidance counselors," to the Am. Assoc. of Personnel and Guidance Counselors, Dallas, Texas, March 19-23, 1967.


Correlated Seminar "Placental function."

"The physiology of the placenta" presented in the colloquy.
Was visiting professor at Tripler General Hospital in Honolulu, Hawaii, on October 25, 1966. Presented a lecture titled "Post maturity and placental function."

Presented 'Physiological concepts of the placenta' at the Kapiolani Hospital in Honolulu, Hawaii.

Was visiting Professor at the University of the Philippines for one month from May to June, 1967.

Presented lecture to the State Family Planning meeting in Salina, Kansas, dealing with the 'New concepts in contraception.'

Took part in the Western Circuit program for the Post Graduate Department at the University of Kansas Medical Center.

RESEARCH

Research grants which were active during the year were the following:


Diuretic Agents and ion transport in the toad bladder. 1R01 AM 10227, USPHS. Principal Investigator: Lawrence P. Sullivan. $12,865.


Kansas Heart Association Grant #66R-1603. July 1, 1966 to June 30, 1967. Dr. Trank.

Heart of America United Fund Board, Inc. #66-R-1559, $3,000. - Dr. Goodridge.

Cancer Society Grant #P-426 for Hormonal and nutritional regulation of lipogenesis during development and growth. $37,380 from 12-1-66 to 11-30-68 - Dr. Goodridge

Dr. Thompson is one of the Co-Investigators on USPHS #NB-HE 06907-01. June 1, 1966 to August 31, 1967, $60,000. Interdepartmental Project Grant. Prognosis and theory in Cerebrovascular Disease.


National Science Foundation - Development of male and female hypophyseal Gonadotropin patterns. June 1, 1966 to May 31, 1968 - $19,150. Principal Investigator Dr. Donald C. Johnson.


PUBLICATIONS


Clancy, R. L. and E. B. Brown, Jr. Cardiac potassium flux and acid-base changes (submitted to Am. J. Physiol.)


Pencleton, R., L. P. Sullivan, J. Tucker and R. E. Stevenson. The effects of a Thiazide and a Mercurial Diuretic on the isolated toad bladder. (Submitted to A. J. P.)


Wolkoff, A. S. Lactic and pyruvic acid concentrations in the fetal lamb. To be published.

Wolkoff, A. S. ATP concentration in pregnant and non-pregnant uterine muscle using firefly lantern. To be published.