

ANNUAL REPORT - DEPARTMENT OF PHYSIOLOGY  
UNIVERSITY OF KANSAS MEDICAL CENTER  
July 1, 1962 - June 30, 1963

This report covers the first academic year in which the Department of Physiology has been located on this campus. The move from Lawrence into Wahl Hall East took place in July 1962. The only member of the former staff to make the move to Kansas City was Dr. Norman Loofbourrow. September 1, 1962, Dr. Alan Thompson from Iowa State University joined our staff as an Associate Professor, and Dr. Lawrence Sullivan transferred from the Department of Pharmacology as an Assistant Professor. The academic staff consisted of the following persons:

E. B. Brown, Jr., Ph.D., Professor and Chairman  
Alan M. Thompson, Ph.D., Associate Professor  
Norman Loofbourrow, Ph.D., Assistant Professor  
Lawrence Sullivan, Ph.D., Assistant Professor

Postdoctoral Fellows:

Dr. Virginia Tucker, Department of Pediatrics, KUMC  
Dr. Wm. Smith, Division of Neurosurgery, KUMC  
Dr. Benjamin Razon, A.I.D. Fellow, Associate Professor of  
Physiology, Far Eastern University, Manila, Phillipines.

Graduate Students:

Robert W. Hamilton, Jr.  
Richard L. Clancy  
Robert Thurber  
Michael Moller  
Dale Mayhew

Dr. Hiroshi Aoki, a Postdoctoral Fellow in Surgery from Japan spent the year in the Department of Physiology working on a joint research project under the auspices of Dr. C. F. Kittle and Dr. Brown.

TEACHING:

Considerable time was spent in conference with the Chairmen of the Departments of Anatomy and Biochemistry in reorganizing the first year Medical School courses. A separate course in all areas of physiology, with the exception of neurophysiology, was organized. A joint offering in Basic Human Neurology, which consisted of Neurophysiology and Neuroanatomy, was left in the curriculum. The first year Medical School course was organized in such a fashion that physiology, biochemistry, and histology were offered during the fall quarter, with physiology and biochemistry continuing into the winter quarter. The

last two weeks of the winter quarter were devoted to an integrated endocrinology course. The spring quarter was devoted exclusively to morphology with exception of the Basic Human Neurology course which extended into that quarter.

After approval by the Graduate School Council the offerings of the Department of Physiology were as follows:

<u>No.</u>	<u>Title</u>	<u>Credits</u>
270	Medical Physiology (Fall)	7
271	Medical Physiology (Winter)	4
276	Basic Neurology (Spring)	9
279	Endocrinology	3
282	Advanced Topics	1-7
286	Reproductive Physiology	5
287	Readings in Reproductive Physiology	6
320	Fluid, Electrolyte, and Acid-Base Metabolism	3

The Basic Human Biology course for nurses was taught in Lawrence.

The principal load of lecturing to the medical students in courses 270-271 was, of course, carried by the four senior staff members of the Department. However, several lectures were given by staff members from other departments. These included Dr. C. Frederick Kittle, Department of Surgery, Dr. Wm. Ruth, Department of Medicine, Dr. Marvin Dunn, Department of Medicine, Dr. Kurt Reissmann, Department of Medicine, Dr. Al Lemoine and Dr. James T. Robinson Department of Ophthalmology and Dr. Charles Brackett, and Dr. Arnold Schoolman, Department of Neurosurgery.

Four graduate courses were organized and plans were made to add two more to this list when additional staff joined the department. These six courses would be presented, one each quarter, on a two-year rotating basis. The first of these courses, "Fluid Electrolyte, and Acid-Base Metabolism", was offered during the Spring Quarter by Dr. Brown.

During the year two elective courses were offered: "Potassium Metabolism and Acid-Base Balance" by Dr. Brown, and "Renal Physiology" by Dr. Sullivan

A Surgery-Physiology Conference for students and Staff was held each week during the academic year.

New equipment had been ordered during the early months of 1962, and this equipment was received at various times during the spring and stored in a vacant room until we moved into the new building. Much of the summer of 1962 was spent in uncrating and checking out the new equipment and writing the experiments to be carried out by students in the laboratory in September. Much help was received from two medical students, who had been employed for the specific purpose of checking out equipment, and trying out the experiments as they were being prepared. These students were sophomores Ray Schmidt and Al Moorhead. Two Sophomore medical students also spent the summer of 1962 carrying out certain projects or joining in research projects already underway. These were Ralph Kauffman and Murray Corbin.

#### RESEARCH:

Research projects active during the year were the following:

Potassium Metabolism and Acid-Base Balance, USPHS Grant #5649, Principal Investigator: E. B. Brown, Jr., June 1, 1962-May 31, 1963. \$16,330.

Ventilatory Responses to Chemical Stimuli in Arterial Blood. AF Contract #AF41-(657)-400, U.S. Air Force School of Aerospace Medicine, Brooks Air Force Base, Texas. Principal Investigator: E. B. Brown, Jr., August 1, 1961-July 31, 1963. \$27,400.

A Study of Cardiovascular Regulatory Mechanisms, USPHS Grant #H-3360, Principal Investigator: E. B. Brown, Jr., Co-principal Investigator: C. Frederick Kittle, May 1, 1962-November 30, 1963, \$38,980.

Effect of pH Upon a Renal Excretion of Weak Acids and Bases. USPHS Grant #H-6974, Principal Investigator: Lawrence P. Sullivan, January 1, 1962-December 31, 1963, \$9,487.

Tissue CO<sub>2</sub> Chemical Forms and Exchange Rates. USPHS Grant GM 10429, Principal Investigator: Alan M. Thompson, June 1, 1962 - August 31, 1963, \$17,250.

Hydrogen Ion Retention in Diabetic Acidosis and Ketosis. USPHS Grant #AM 06570-01, Principal Investigator: Dr. Virginia Tucker, Co-principal Investigator: E. B. Brown, Jr., September 1, 1962-August 30, 1963, \$12,328.

Control of Collecting Duct Secretion of Hydrogen and Potassium. NSF Grant #GB 655, Principal Investigator: Lawrence Sullivan, January 1, 1963-December 31, 1963, \$16,900.

During the year one graduate student, Mr. Richard Clancy, was supported on a USPHS Predoctoral Fellowship, and one Postdoctoral Fellow, Dr. Virginia Tucker, was supported on a USPHS Postdoctoral Fellowship.

#### PUBLICATIONS:

Publications by members of the staff during the period of July 1, 1962 to June 30, 1963:

Long, David M., Richard L. Clancy and E. B. Brown, Jr. Role of abdominal viscera in the hyperkalemia produced by hypercapnia. *Am. J. Physiology*, 204:753-757, 1963.

Long, David M., M. W. Myers, E. B. Brown, Jr. and C. W. Lillehei. Myocardial necrosis and electrocardiographic changes related to microcirculatory abnormalities. *Am. J. of Cardiology*, 10:695, 1962.

Brown, E. B., Jr., B. Goott and R. Lade. Potassium movement and intracellular ( $H^+$ ). *The Physiologist*, 5:114, 1962. (Abstract.)

Clancy, R. L. and E. B. Brown, Jr. Changes in bone potassium in response to hypercapnia. *Am. J. of Physiology*, 204:757-760, 1963.

Lade, Roswith I, and E. B. Brown, Jr. Movement of Potassium between muscle and blood in response to respiratory acidosis. *Am. J. Physiology*, 204:761-764, 1963.

Brown, E. B., Jr. and Bernard Goott. Intracellular hydrogen ion changes and potassium movement. *Am. J. Physiology*, 204:765-770, 1963.

Lade, Roswith I. and E. B. Brown, Jr. Plasma potassium changes during rebreathing in the dog. *Proc. Soc. Exp. Biol. and Med.*, 112:330, 1963.

Brown, E. B., Jr. In vivo and in vitro buffer curves of true plasma. *Fed. Proc.*, 22:517, 1963. (Abstract.)

Aoki, Hiroshi, Herbert Hilgers, E. B. Brown, Jr., and C. Frederick Kittle. Hemodynamic effects of hypercapnia. Surgical Forum, 14:232, 1963.

Thompson, Alan M. Teaching Physiology -1963 (New Instrumentation in physiology teaching at K. U. Medical Center.) J. of the Kansas Medical Society, 64:94-97, 1963.

Thompson, Alan M. (with Lane K. Hintz and Janice Fleming). Time Studies on Distribution of T-1824 and Sucrose in Rat Liver. Fed. Proc. Vol. 21, p.122 (Abstract.)

Bean, J. W. and L. P. Sullivan. Brain O<sub>2</sub> in exposure to O<sub>2</sub> at High Pressures. The Physiologist, 5:104, 1962 (Abstract.)

Sullivan, Lawrence P. and Michael McVaugh (with the technical assistance of Gretchen Nordstrom). Effect of rapid and transitory changes in blood and urine pH on NH<sub>4</sub> excretion. The Am. J. of Physiology, 204:1077, 1963.

Gellhorn, Ernst and G. N. Loofbourrow. Emotions and Emotional Disorders. Paul B. Hoeber, Inc. 496 pp., 1963.

#### ACTIVITIES OF STAFF:

Dr. Brown: Editor of Am. J. Physiology, J. Applied Physiology, Modern Medicine.

Member NIH Physiology Fellowship Panel.

Faculty member for two-day symposium on Acid-Base Balance, VA Hospital, Minneapolis, October, 1962.

Faculty member, Aspen Conference, June, 1963.  
Aspen, Colorado.

Presented paper at Fall Meeting of Am. Physiol. Soc.,  
Buffalo, N. Y., August 1962.

Presented paper at FASEB meeting, Atlantic City, April, 1963.

Dr. Thompson: Served as Review Editor on several occasions for "Science".

Dr. Loofbourrow: Delivered three lectures to Graduate Evening Course on "Autonomic Nervous System."

Dr. Sullivan: Gave lecture as part of "Renal Function Workshop" at annual meeting of Am. Assoc. of Clinical Pathologists, Chicago, September 1962.

Dr. Virginia Tucker: Read paper before Society for Pediatric Research, May, 1963, entitled "Chronic Diarrhea with Hypochloremic Alkalosis."