UNIVERSITY OF KANSAS MEDICAL CENTER
Department of Physiology
Annual Report
July 1, 1972-June 30, 1973

ACADEMIC STAFF
E. B. Brown, Jr., Ph.D., Professor and Chairman
D. C. Johnson, Ph.D., Professor (Joint appt. Ob-Gyn)
L. P. Sullivan, Ph.D., Professor
A. M. Thompson, Ph.D., Professor
R. L. Clancy, Ph.D., Associate Professor
G. N. Loofbourrow, Ph.D., Associate Professor
J. B. Rhodes, M.D., Associate Professor (Joint appt. Medicine)
J. W. Trank, Ph.D., Associate Professor
N. C. Gonzalez, M.D., Assistant Professor
P. A. Hensleigh, M.D., Ph.D., Assistant Professor (Joint appt Ob-Gyn)
A. S. Hermreck, M.D., Ph.D., Assistant Professor (Joint appt Surgery)
C. M. Tarr, Ph.D., Assistant Professor
J. D. Wood, Ph.D., Assistant Professor
K. L. Goetz, Ph.D., M.D., Lecturer
G. C. Bond, Ph.D., Lecturer, 7/1/72 to 12/31/72

POSTDOCTORAL FELLOWS:
R. S. Mallampati, DVM, Ph.D., Univ. Wisconsin
H. C. Cheng, Ph.D., Ohio State Univ.
T. S. Sashita, M.D., Tokyo Medical College

GRADUATE STUDENTS

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<tr>
<th>PRELIMS</th>
<th>CANDIDATE FOR</th>
<th>DATE DEGREE GRANTED</th>
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<tr>
<td>Donald Deeds</td>
<td>5/3/73</td>
<td>Ph.D.</td>
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<td>Michael Miner, M.D.</td>
<td>4/26/73</td>
<td>Ph.D.</td>
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<td>Kyra Riegle</td>
<td>8/9/71</td>
<td>Ph.D.</td>
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<td>Harvey Grotjan</td>
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<td>Bin Ching Wang</td>
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<td>Mohan Rao Mittapalli, M.D.</td>
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<td>Min-Chu Lee (entered Jan. 1973)</td>
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<td>David Strome (entered March 1973)</td>
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<td>Lawrence Stoskopf, M.D. (entered Jan. 1973)</td>
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<td>Chung Ning Pang</td>
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SUMMER RESEARCH FELLOW
Charles Colbert - Dr. D. C. Johnson
KAW VALLEY HEART STUDENTS
Roger Hildwein - Dr. Tarr
Bill McGlothlin - Dr. Sullivan
Kathy Madison - Dr. Gonzalez
Robb Hensleigh - Dr. Clancy
Bob Kutchko - Dr. Hermreck

OUTSIDE SPEAKERS AND VISITORS
Oct. 23, 1972
Dr. Jean Crabbe, Univ. of Louvain, Belgium. "Hormonal Influences on Sodium Transport in Living Cells."

Nov. 6, 1972
Dr. Benjamin W. Zweifach, Professor of Bioengineering, Univ. of California at San Diego. Studies on Lymphatic Capillary Pressures and Blood-Tissue Exchange."

Dec. 18, 1972
Dr. Robt. L. Hazelwood, Professor of Biology, University of Houston, Houston, Texas. "Physiological Studies with a New Pancreatic Polypeptide Hormone."

Feb. 14, 1973
Theodore H. Bullock, Professor of Neurosciences, University of California, San Diego. "Noise Probabilistic Models in the Brain."

Mar. 5, 1973
Lloyd H. Smith, M.D., Professor and Chairman, Dept. of Medicine, School of Medicine, Univ. of California, San Francisco, California. "Pyrimidine Metabolism in Man."

Mar. 9, 1973
Guillermo Whittembury, M.D., Venezuelan Institute of Scientific Investigation, Caracas, Venezuela. "Recent Studies on Kidney Preservation."

June 27, 1973
Peter A. Stewart, Ph.D. Div. of Biological and Medical Sciences, Brown University, Providence, Rhode Island. "Computers Can Help in Understanding Body Acid-Base Changes."

Aug. 8, 1972 - Ph.D. THESIS DEFENSE SEMINAR
Mr. Chung Ning Pang, B.S., Hong Kong Baptist College, 1967. "Radioimmunoassay of Steroids: Preparation of Specific Antibody."
GRADUATE COURSES TAUGHT

#310 - Transport, Permeability and Membranes. 2 hrs. (FE)
Drs. Thompson, Sullivan, and Tarr.

#327 - Physiological Instrumentation I. 2 hrs. (FE) Dr. Trank.

#320 - Fluid, Electrolyte, and Acid-Base Balance. 3 Cr. (SO).
Drs. Brown, Thompson and Sullivan.

#328 - Physiological Instrumentation II. Dr. Trank. 1-2 Cr. Hrs. (SO),
depending on level of participation. Lecture-laboratory
seminar course.

ACTIVITIES OF STAFF

E. B. Brown, Jr., Ph.D., Professor and Chairman
July 20, 1972 - Sheppard Air Force Base, Wichita Falls, Texas. Visit
facilities of School of Health Sciences and evaluate training program
for Physician Assistants.

Aug. 27 - Sept. 1 - ACDP Meeting at Pennsylvania State University,
University Park, Pennsylvania, and Fall meetings of American
Physiological Society.

Regional Delegate Assembly, Des Moines, Iowa.

Sept. 22-23 - 23rd Annual Meeting and 9th Annual Delegates Assembly
of Kansas Heart Association, Broadview Hotel, Wichita, Kansas.

Sept. 26 - Washington, D. C. to consult with Dr. Reynolds and others
on American Physiological Society contract with National Medical
Audiovisual Contract (NMAC).

Oct. 2-3 - AAMC (Council of Faculties) meeting in Chicago, Illinois.
Talk presented on "Faculty Response to Quality Control of Faculty."

Oct. 5-6 - Temple, Texas, VA Hospital. Lecture on "Clinical Interpretation
of Blood Gas Data."

Oct. 10-11-12 - Washington, D. C. for American Physiological Society
Steering Committee of National Medical Audiovisual Contract to review
and evaluate films available for teaching. Dr. Brown Chairman of
Subcommittee on Respiration.
Nov. 2-6 - Association of Chairmen of Departments of Physiology fall meeting in Miami, Florida, at same time as AAMC annual meetings of Council of Academic Societies, Fontainebleu Hotel.

Dec. 3-4 - Finance Committee meeting of American Physiological Society in Washington, D. C.

Dec. 9 - Board of Directors meeting of Kansas Heart Association, Topeka, Kansas.


Feb. 22-23 - American Physiological Society Finance Committee meeting, Bethesda, Maryland.

Mar. 4-6 - Served as a member of an advisory committee for the Eastern Virginia Medical School, Norfolk, Virginia.

Mar. 20-21 - Attended meetings of the Steering Committee of the American Physiological Society in Washington, D. C.

Mar. 25-26 - Lecture on "Potassium Metabolism and Acid-Base Regulation," University of Missouri, Columbia, Missouri.

Mar. 28-31 - Attended meetings of the AAMC Council of Academic Societies and Workshops on Categorical Programs and Individualized Medical Education in Washington, D. C. (Representative of Association of Chairmen of Departments of Physiology.)

April 2-3 - Attended meetings of the Midwest-Great Plains Region of the AAMC in Chicago, Illinois.

April 12-13 - Lectures on "Acid-Base Balance" and Blood Gases, " and assisted with a Workshop for the Annual Convention of the Arkansas Society for Medical Technology and American Medical Technologists in Little Rock, Arkansas.

April 15 - Annual Business Meeting and Dinner of the Association of Chairmen of Departments of Physiology in Atlantic City, New Jersey. Dr. Brown is currently President of that organization.
April 15-20 - American Physiological Society meetings of the FASEB in Atlantic City, N. J.

May 12 - Board of Directors Meeting of the Kansas Heart Association, Topeka, Kansas.


Richard L. Clancy, Ph.D., Associate Professor
Chairman Animal Care Committee.
Representative to subcommittee for Admissions Requirements to Medical School.


Graduate Advisor for Miss Kyra Riegle.

Norberto C. Gonzalez, M.D., Assistant Professor
April 15-20, 1973 - Attended Meetings of FASEB in Atlantic City, N. J.
Directing research efforts of Dr. Michael Miner, Graduate Student.

Paul A. Hensleigh, M.D., Ph.D., Assistant Professor

Jan. 23, 1973 - Conducted seminar for Rice County Kansas Medical Society, Lyons, Kansas.


Mar. 28-30, 1973 - Attended Society for Gynecologic Investigation meeting, Atlanta, Georgia.

Paul A. Hensleigh, M.D., Ph.D., Assistant Professor (continued)
April 4-7 - Attended Postgraduate Course and Annual meeting of American
Fertility Society, San Francisco, California.
May 10-12, 1973 - Attended Kansas City Gynecologic Society Postgraduate
Course, Crown Center, Kansas City, Missouri.

Arlo S. Hermreck, M.D., Ph.D., Assistant Professor
Oct. 2-6, 1972 - Presented a paper at the American College of Surgeons 
Annual meeting in San Francisco.
Nov. 9-11 - Lectured at the University of Texas Medical Branch, 
Galveston, Texas.
Jan. 9-12, 1973 - Lectured four days on the KUMC Western Circuit Course.
Feb. 15 - Presented a Clinical Cancer Symposium at the University of 
South Dakota Medical School, Yankton, S. D.
Feb. 22-24 - Presented a paper at the Central Surgical Association, 
Toronto, Canada.
Apr. 10-13 - Lectured four days on the KUMC Eastern Circuit Course.
Apr. 15-20 - Presented a paper at FASEB meetings in Atlantic City, N. J. 
"The Effects of Mannitol on Renal Function Following Ischemic Injury."
May 7-10 - Presented a paper at the Southwestern Surgical Congress, 
Phoenix, Arizona.

Donald C. Johnson, Ph.D., Professor
Oct. 1972 - Workshop conference on Mechanisms of Puberty --NIH, 
Arlie, Virginia.
April 1973 - Attended meetings of Federation.

Graduate Students:
C. N. Pang, Ph.D. completed Fall 1972
H. E. Grotjan
G. N. Loofbourrow, Ph. D., Associate Professor

Department Duties:

1. **Librarian.** Book and subscription orders; preparation of journals for bindery; correspondence and follow-up on orders to State Printer for binding; overseeing arrangement of books, etc.

2. **Teaching aids.** Arranging for previews of films, slides, tapes; coordination of departmental efforts for machine teaching, programmed teaching; selection and ordering of visual aid hardware and software; communication with Department of Medical Communications; arranging for monitors in Room 300; preparation of videotapes.

3. **Graduate Committee Chairman.** Correspondence with students inquiring about graduate work and with those applying for admission to the Graduate School. Revision of material for Peterson's Guide and correspondence with publisher.

4. **Chairman of Temporary Committees** for all new graduate students who have not yet selected an area of concentration; appointment of two members to serve on the temporary committee for each new student.

5. **Scheduling.** Preparing schedule for the Medical Physiology course in collaboration with Drs. Brown and Wood. Coordination of schedule with Biochemistry and Pharmacology. This also involves room scheduling and changes in room schedules as the need arises. Communication with Joe Kimmel, Curriculum Coordinator.

6. **Secretarial.** Taking minutes of staff meetings, organizing them and preparing them for the typist.

7. **Graduate Courses.** Getting information from staff members about the courses they will offer, preparing announcements of them and distributing them to departmental chairmen and administrative officers prior to enrollment time. This includes getting a statement as to the days and hours offered, and places.

8. **Liaison with Department of Learning Resources;** mailing copies of handouts, examinations, exam scores, etc. Conferring as required.

9. **Preparation of Evaluation Form** for students to use in evaluating the medical course and the staff.

10. **Old Exam File.** Preparation of up-dated file for Clendening Library and arranging for its placement.
G. N. Loofbourrow, Ph. D., Associate Professor (continued)

11. Conference Folders. Overseeing the preparation of these, and placing copies in Clendening Library and our office.

12. Office Details. Signing time sheets, change-of-status personnel forms, non-academic appointment and change of appointment forms, purchase orders, routine work orders, pharmacy requisitions, travel requests and vouchers, etc.

13. Attending committee meetings for Dr. Brown when he could not attend.

14. Preparing Job Description for Teaching Assistants.

15. Serving as Departmental Representative for the AREA III Committee.

16. Departmental Representative for AFFIRMATIVE ACTION.

17. Arranging Display for medical school applicants here for Christmas interviews.

18. Arranging tours for visiting groups from high schools and colleges.

Medical Center Service
Served on Basic Science Internal Planning Subcommittee for new B.S. Building.

Service Outside Medical Center
Lecture at St. Luke's Hospital.
Revised chapter on Neuromuscular Integration for publication in 2nd ed. of The Science and Medicine of Exercise and Sports. (Harper-Row, in press.)

James B. Rhodes, M. D., Associate Professor

July 17, 1972 - St. Luke's Hospital, Kansas City, Missouri. Moderator for panel on the Acute Abdomen.

Sept. 25 - Benedictine College, Atchison, Kansas. Biology seminar - "Digestion and Absorption of Protein."
Research Hospital, K. C., Missouri. "Clinical problems involving the cardioesophageal junction."


Mar. 7 - St. Francis Hospital and Wesley Hospital, Wichita, Kansas.
Grand Rounds and House Staff Teaching Sessions.

Apr. 13 - Kansas Dietetic Association, Kansas City, Kansas. "Low and High Fiber Diets."

May 22 - American Gastroenterological Association, New York, N. Y., Annual meeting.
L. P. Sullivan, Ph. D., Professor

Oct. 7-14, 1972 - Attended V International Congress of Nephrology, Mexico City, Mexico.

Feb. 1973 - Gave three lectures in Pathology 308.

Apr. 16-20 - Attended FASEB Meeting, Atlantic City, N. J.

Committees
- Health Science Advancement Award Committee
- Medical Student Scholarship Committee
- Minority Student Committee
- Ran summer remedial program in physiology for minority students
- Directed research of Graduate Student Donald Deeds.

C. Merrill Tarr, Ph. D., Assistant Professor

Aug. 1972 - Seminar, Department of Pharmacology, University of Iowa.

Feb. 1973 - Seminar - Department of Physiology and Biophysics, University of Nebraska Medical Center, Omaha, Nebraska.

April 1973 - Seminar - Department of Physiology, Cornell University Medical Center, New York.

April 1973 - FASEB Meeting in Atlantic City, New Jersey.

Chairman of KUMC Ad Hoc Faculty Committee on Tenure.

Alan M. Thompson, Ph. D., Professor

Sept. 20, 1972 - Attended meetings of Graduate Deans of Kansas at Wichita, Ks.

Nov. 28-Dec. 1 - Attended meeting of Council of Graduate Schools in New Orleans.


Year-round evaluation plus meeting Feb. 21 and 22 in Washington.

Feb. 23 - Attended meeting of special committee on effect of government policies of the AAMC in Washington.

K. U. Assignments
- Chaired Area III Committee of the Graduate School.
- Associate Dean of Graduate School in charge of graduate affairs at the Medical Center.
- In charge of Biological Science Lecture Series.
- Member of Central Administrative Planning Committee for the new building programs with specific subcommittee responsibility for the Basic Science Building.
- Member of Faculty Promotions Committee.

Editorial
- Referee for SCIENCE.
John W. Trank, Ph.D., Associate Professor
Presented a series of four lectures on hospital electrical safety to coronary care nursing program.
Served as co-advisor to Mr. Greg Stephens at Lawrence, Kansas, (Graduate Student)
Supervisor of Department of Physiology Electronic Shop.
Member of Research Committee of Kansas Heart Association.
Apr. 13, 1973 - Attended annual meeting of Research Committee of Kansas Heart Association at Emporia, Kansas.

Jackie D. Wood, Ph.D., Assistant Professor
Mar. 15 - Lectured to Sigma Xi group on "Nerve Cells, Muscle Cells and Gastrointestinal Motility."
Apr. 5 - Gave the Annual Tri-Beta lecture at Kansas State College, Pittsburg, Kansas, on "Nerve Cells, Muscle Cells, and the Gut."
Apr. 16-19 - Attended meetings of FASEB in Atlantic City, N. J. and presented a paper at these meetings on "Electrical Activity of Single Neurons of the Enteric Nervous System of the Cat, Dog, and Guinea Pig."
Apr. 22-May 21 - Visiting Scientist, University of Munich School of Medicine, Munich, West Germany. Presented colloquium on "Nerve Cells, Muscle Cells and Gastrointestinal Motility" at the Physiological Institute of the University of Munich.
Presented colloquium on "Hereditary Megacolon in the Mouse, a Model for Hirschsprung's Disease," at Pediatric Institute of the University of Munich.
May 28-June 1 - Visiting Scientist, Physiological Institute, Bulgarian Academy of Sciences, Sophia, Bulgaria.
RESERCH GRANTS ACTIVE DURING THE YEAR

NIH HL12231-05. 10/1/72-9/30/73. "Intracellular Response to Acid-Base Changes." Dr. E. B. Brown, Jr.


NIH HL14047, 5/1/71 to 4/30/74. "Relative Effects of Volume Receptors on ACH Titer." Dr. Gary C. Bond.


#9777 (KR 7-2) Kansas Heart Association, 7/1/72 to 6/30/73. Metabolic H\textsuperscript{+} changes, H\textsuperscript{+} Flux and Myocardial Performance. Dr. N. C. Gonzalez.

Wilkinson Research Fund. Kansas Endowment Association is source of research support for Dr. Paul Hensleigh.


# 9734-01 Kaw Valley Heart Association. 7/1/71-6/30/73. "The Study of Cardiac and Peripheral Vascular Effects of Sepsis." Dr. A. S. Hermreck.


#9735 Kaw Valley Heart Association. 7/1/71 to 6/30/73. "Inotropic Agents and Ca\textsuperscript{++} Current in Cardiac Muscle." Dr. Eugene Luckstead (with Dr. Tarr).

NIH AM15883-02 1/1/73 to 12/31/73. "Effect of Acid-Base Changes on Renal K transport." Dr. L. P. Sullivan.

HL12426-05. 2/1/72 to 1/31/76. "Voltage Clamp of Cardiac Muscle." Dr. C. M. Tarr.

#9225 Kansas Heart Association. 7/1/71 to 6/30/73. "Ionic Mechanism of Drug Action in Cardiac Muscle." Dr. C. M. Tarr.

NIH NSO7059-05 to 8/31/72. "Nonelectrolyte Transport Alteration in Perfused Brain." Dr. A. M. Thompson.

#8119 NSF - GB-31292, 10/15/71 to 3/31/73. "Function of the Enteric Nervous System." Dr. J. D. Wood.

USPH IRS 48-W02-9925, 5/1/72 to 4/30/75. "Congenital Megacolon in Mice." Dr. J. D. Wood.

PUBLICATIONS


Historical Comment.

The Annual Report for 1972-1973 is the terminal report of the present administration of this department. The department was moved from the Lawrence campus to the Kansas City campus and re-organized in July 1962. For the 1962-1963 academic year the department consisted of four staff members, four graduate students, and two postdoctoral fellows. Over the ensuing eleven years the staff has increased to thirteen, including four people with joint appointments in clinical departments. Sixteen students have been granted Ph.D. degrees, and a large number of postdoctoral fellows have trained in the department.

In building a department from scratch, as was done here beginning in the summer of 1962, there are at least two basic philosophies that can be followed. Illustrations of each of these are available in various schools in this country. One approach is to seek people, all of whom have the same interest as the department chairman, and aim for an area of excellence by gathering together a critical mass of people with interest in this area. Another approach is to select people with an interest in various areas of physiology. There are clear advantages and disadvantages to each approach. We chose the latter, and the department has been developed by deliberately seeking for staff members with expertise in particular areas until all of the major fields of physiology have been covered. We now have a staff of sufficient size that there is at least one, and in most areas more than one person, with expertise and research interest in each of the major areas of physiology. We believe that this approach has strengthened our teaching efforts for the undergraduate medical physiology course and developed considerably greater variety for our graduate courses and for training graduate students as well as postdoctoral fellows.

Although there are still clearly defined areas requiring greater strength, I believe it is fair to say that in June 1973 the department is a virile, active, and growing department. Staff morale in this department has always been high. Research interest and research productivity has been good, teaching ability is good to outstanding. With the strength that is already in this department and with the possibility of adding several new staff members as the medical school class increases to 200, it should be possible to attract an outstanding candidate to the chairmanship of this department.
The department is looking forward to the participation of Dr. Fred Samson, Director of MRU, whose academic appointment will be in this department. One of our major disappointments over the years has been the poor showing our students have made in the physiology portion of the National Board Examinations. We have reviewed an item analysis of this examination for the past two years and we are convinced of one thing; a great deal of physiology has been forgotten in one year.

Current year

This was the second year that teaching objectives for the Medical School Physiology course were prepared and given to students. The objectives which had been prepared the previous year were refined with the help of Dr. Pierleoni and Dr. DeNio. Three of our graduate students presented papers at the Graduate Student Research Day. These were Dr. Michael Miner who is supervised by Dr. Gonzalez, Ms. Kyra Riegle who is completing her work for the Ph. D. with Dr. Clancy, and Mr. Donald Deeds who works with Dr. Sullivan. Mr. Deeds received an award of $50 for his presentation.