

XXVIII. CARDIOVASCULAR SYSTEM STUDIES*

Prof. W. D. Jackson
Dr. G. O. Barnett†
A. N. Chandra

P. G. Katona
R. F. Lercari
F. C. Lowell, Jr.
S. R. Maimon

D. H. Pruslin
L. D. Turner
J. F. Young

RESEARCH OBJECTIVES

Our research is concerned mainly with the quantitative description and mathematical simulation of the biological control system involved with the regulation of blood pressure and heart rate. We have investigated various parts of this biological system either by perturbation techniques or by opening the control loop and examining the relation between an applied input and the resulting output. The simulation has been carried out either on an analog computer or as a mathematical model on a digital computer.

Another aspect of our work deals with the use of electrical methods for blood-flow measurement. A magnetohydrodynamic or electromagnetic flowmeter will be developed for mean-flow measurement, and thermal techniques for local flow measurements are also under investigation.

W. D. Jackson, G. O. Barnett

A. WORK COMPLETED

1. BIO-MEDICAL ENGINEERING

A thesis in this field, entitled "Dynamic Changes in Dogs' Heart Rate Due to Vagal Stimulation," was submitted to the Department of Electrical Engineering, M. I. T., by J. W. Poitras in partial fulfillment of the requirements for the degree of Bachelor of Science, August 1964.

P. G. Katona

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†Also at Massachusetts General Hospital, Boston, Massachusetts.

